THE

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Nature's Laws, God's Laws; Obey and Live.

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A City of Health.

BY DR. B. W. RICHARDSON.

OUR city, which may be named *Hygeia*, has the advantage of being a new foundation, but it is so built that existing cities might be largely modeled upon it.

The population of the city may be placed at 100,000, living in 20,000 houses, built on 4,000 acres of land—an average of twenty-five persons to an acre. This may be considered a large population for the space occupied, but, since the effect of density on vitality tells only determinately when it reaches a certain extreme degree, as in Liverpool and Glasgow, the estimate may be ventured.

The safety of the population of the city is provided for against density by the character of the houses, which insures an equal distribution of the population. Tall houses overshadowing the streets, and creating necessity for one entrance to several tenements, are nowhere permitted. In streets devoted to business, where the trades-people require a place of mart or shop, the houses are four stories high, and in some of the western streets, where the houses are separate, three and four storied buildings are erected; but on the whole it is found bad to exceed this range, and as each story is limited to fifteen feet, no house is higher than sixty feet.

The substratum of the city is of two kinds. At its northern and highest part there is clay; at its southern and south-eastern, gravel. Whatever disadvantages might spring in other places from a retention of water on a clay soil, are here met by the plan that is universally followed of building every house on arches of solid brickwork. So, where in other towns there are areas, and kitchens, and servants' offices, there are here subways through which the air flows freely, and down the inclines of which all currents of water are carried away.

The acreage of our model city allows room for three wide main streets or boulevards, which run from east to west, and which are the main thoroughfares. Beneath each of these is a subway, a railway along which the heavy traffic of the city is carried on. The streets from north to south which cross the main thoroughfares at right angles, and the minor streets which run parallel, are all wide, and, owing to the lowness of the houses, are thoroughly ventilated, and in the day are filled with sunlight. They are planted on each side of the pathways with trees, and in many places with shrubs and evergreens. All the interspaces between the backs of houses are gardens. The churches, hospitals, theaters, banks, lecture-rooms, and other public buildings, as well as some private buildings, such as warehouses and stables, stand alone, forming parts of streets, and occupying the position of several houses. They are surrounded with garden space, and add not only to the beauty but to the healthiness of the city. The large houses of the wealthy are situated in a similar manner.

The streets of the city are paved throughout with the same material. As yet, wood pavement set in asphalte has been found the best. It is noiseless, cleanly, and durable. Tramways are nowhere permitted, the system of underground railways being found amply sufficient for all purposes. The side pavements, which are everywhere ten feet wide, are of white or light gray stone. They have a slight incline toward the streets, and the streets have an incline from their centers toward the margins of the pavements.

From the circumstance that the houses of our model city are based on subways, there is no difficulty whatever in cleansing the streets, no more difficulty than is experienced in Paris. That disgrace to our modern civilization, the mud-cart, is not known. The accumulation of mud and dirt in the streets is washed away every day through side openings into the subways, and is conveyed, with the sewage, to a destination apart from the

city. Thus the streets everywhere are dry and clean, free alike of holes and open drains.

Gutter children are an impossibility in a place where there are no gutters for their innocent delectation. Instead of the gutter, the poorest child has the garden; for the foul sight and smell of unwholesome garbage, he has flowers and green sward.

It will be seen, from what has been already told, that in this our model city there are no underground cellars, kitchens, or other caves, which, worse than those ancient British caves that Nottingham still can show the antiquarian as the once fastnesses of her savage children, are even now the loathsome residences of many millions of our domestic and industrial classes. There is not permitted to be one room underground. The living part of every house begins on the level of the street.

The houses are built of brick which has the following sanitary advantages: It is glazed, and quite impermeable to water, so that during wet seasons the walls of the houses are not saturated with tons of water, as is the case with so many of our present residences. The bricks are perforated transversely, and at the end of each there is a wedge opening, into which no mortar is inserted, and by which all the openings are allowed to communicate with each other. The walls are in this manner honeycombed, so that there is in them a constant body of common air let in by side openings in the outer wall, which air can be changed at pleasure, and, if required, can be heated from the fire-grates of the house. The bricks intended for the inside wall of the house, those which form the walls of the rooms, are glazed in different colors, according to the taste of the owner, and are laid so neatly that the after adornment of the walls is considered unnecessary, and, indeed, objectionable. By this means those most unhealthy parts of household accommodation, layers of moldy paste and size, layers of poisonous paper, or layers of absorbing color stuff or distemper, are entirely done away with. The walls of the rooms can be made clean at any time by the simple use of water, and the ceilings, which are turned in light arches of thinner brick, or tile, colored to match the wall, are open to the same cleansing process. The color selected for the inner brickwork is gray, as a rule, that being most agreeable to the sense of sight; but various tastes prevail, and art so soon ministers to taste, that, in the houses of the wealthy, delightful patterns of work of Pompeian elegance are soon introduced.

As with the bricks, so with the mortar and the wood employed in building; they are rendered, as far as possible, free of moisture. Sea-sand containing salt, and wood that has been saturated with sea-water, two common commodities in badly-built houses, find no place in our modern city.

The most radical changes in the houses of our city are in the chimneys, the roofs, the kitchens, and their adjoining offices. The chimneys, arranged after the manner proposed by Mr. Spencer Wells, are all connected with central shafts, into which the smoke is drawn, and, after being passed through a gas furnace to destroy the free carbon, is discharged colorless into the open air. The city, therefore, at the expense of a small smoke rate, is free of raised chimneys and of the intolerable nuisance of smoke. The roofs of the houses are but slightly arched, and are, indeed, all but flat. They are covered either with asphalte, which experience, out of our supposed city, has proved to last long and to be easily repaired, or with flat tile. The roofs, barricaded round with iron palisade, tastefully painted, make excellent out-door grounds for every house. In some instances flowers are cultivated on them.

The housewife must not be shocked when she hears that the kitchens of our model city, and all the kitchen offices, are immediately beneath these garden roofs; are, in fact, in the upper floor of the house instead of the lower. In every point of view, sanitary and economical, this arrangement succeeds admirably. The kitchen is lighted to perfection, so that all uncleanliness is at once detected. The smell which arises from cooking is never disseminated through the rooms of the house. In conveying the cooked food from the kitchen, in houses where there is no lift, the heavy-weighted dishes have to be conveyed down, the emptied and lighter dishes upstairs. The hot water from the kitchen boiler is distributed easily by conducting pipes into the lower rooms, so that in every room and bedroom hot and cold water can at all times be obtained for washing and cleaning purposes; and as on every floor there is a sink for receiving waste water, the carrying of heavy pails from floor to floor is not required. The scullery, which is by the side of the kitchen, is provided with a copper and all the appliances for laundry work; and when that is done at home, the open places on the roof above make an excellent drying ground.

In the wall of the scullery is the upper opening to the shaft of the dust-bin. This shaft, open to the air from the roof, extends to the bin under the basement of the house. A sliding door in the wall opens into the shaft to receive the dust, and this plan is carried out on every floor. The coal-bin is

off the scullery, and is ventilated into the air through a shaft, also passing through the roof.

On the landing in the second or middle stories of the three-storied houses there is a bath-room, supplied with hot and cold water from the kitchen above. The floor of the kitchen and of all the upper stories is slightly raised in the center, and is of smooth, gray tile; the floor of the bath-room is the same. In the living-rooms, where the floors are of wood, a true oak margin of floor extends two feet around each room. Over this no carpet is ever laid. It is kept bright and clean by the old-fashioned bees-wax and turpentine, and the air is made fresh and ozonic by the process.

Considering that a third part of the life of man is, or should be, spent in sleep, great care is taken with the bedrooms, so that they shall be thoroughly lighted, roomy and ventilated. Twelve hundred cubic feet of space is allowed for each sleeper, and from the sleeping apartments all unnecessary articles of furniture and of dress are rigorously excluded. Old clothes, old shoes, and other offensive articles of the same order, are never permitted to have residence there. In most instances the rooms on the first floor are made the bedrooms, and the lower, the living rooms. In the larger houses bedrooms are carried out in the upper floor for the use of the domestics. To facilitate communication between the kitchen and entrance hall, so that articles of food, fuel, and the like may be carried up, a shaft runs in the partition between the two houses, and carries a basket lift in all houses that are above two stories high. Every heavy thing to and from the kitchen is thus carried up and down from floor to floor, and from the top to the basement, and much unnecessary labor is thereby saved. In the two-storied houses the lift is unnecessary. A flight of outer steps leads to the upper or kitchen floor.—*Nature.*

(*To be Continued.*)

True Temperance.

"EVERY man that striveth for the mastery is temperate in all things."—PAUL.

"Look not thou upon the wine when it is red."—SOLOMON.

"Cattle know when to go home from grazing; but a foolish man never knows his stomach's measure."—SCANDINAVIAN PROVERB.

True temperance is the proper use of good things, and total abstinence from bad things. It is a grave popular error that temperance is the moderate use of everything, irrespective of quality. Good things may become evil when used in excess, on account of quantity. The most wholesome food may cause serious diseases when thus abused.

There is another class of substances which are intrinsically bad. They are evil, and only evil, in all proportions and quantities. They have no redeeming qualities. The slightest indulgence in these articles is intemperance.

The glutton, the gormand, the epicure, is intemperate because he abuses by excessive use, that which might nourish him if taken with moderation. The tippler or wine-bibber is intemperate, not because he uses wine or brandy in great quantities, but because he takes even the smallest portion of the poisons. The boy who robs an orchard is a petty thief. The official who puts his hand into the national treasury and abstracts the public money is a defaulter. Each individual is a thief. Both are criminals of the same class. They differ only in the degree of the crime committed. They stand, respectively, at the two ends of a long series of gradations which all incline in the same direction.

Intemperance presents two similar extremes. At one end is the man who takes his daily or occasional glass of wine or beer—just to make him "feel well," or "for his stomach's sake"—and at the other is seen the confirmed inebriate reeling into a drunkard's grave. Both individuals stand in the same line, their names belong in the same category. Moderate drinkers—as small tipplers term themselves—really differ from beer-guzzlers, topers, and "old soakers," in only one particular. They have taken only a few degrees, only the initiatory, perhaps, while the latter are nearly ready to graduate in ignominy. The moderate drinker has only to continue his course in the same direction in order to bring up at last in the same slough with other wretched victims of intemperance.

THE SIN OF INTEMPERANCE.

Primarily, the crime of intemperance is a sin against the body. The moral evils which result are the natural consequence of injuries suffered by the physical organism. The act of drinking, *per se*, is not a sin, whether the liquor taken is beer, wine, or brandy, or be the individual a hod-carrier or a clergyman, no criminality can be attached to a mere mechanical act. The real sin consists in subjecting the body to *unnatural and harmful stimulation.* Nature has given to each organ of the body its proper function. When allowed to act unrestrained, these functions are all properly performed, and harmony reigns in the vital domain. But so soon as any organ or set of organs is unduly excited,

the harmony is destroyed, and discordant action results. A whole train of ills then follow as immediate consequences of the disturbed action.

The mental and moral evils which result from the use of intoxicating liquors, are the direct consequences of the first sin against the body, which was *artificial stimulation.*

TEA, COFFEE, AND TOBACCO DRUNKARDS.

Alcoholic liquors are not the only means by which artificial stimulation may be indulged. A large number of drugs and poisons possess properties which are capable of occasioning the same results. Tea, coffee, tobacco, opium, hashish, and absinthe are some of the most common of these. The effects of these several agents may be said to be essentially the same in kind, though some of them are doubtless productive of more injury than others.

True temperance discards all of these poisons. They all go together. It is a question upon which there is considerable division of opinion, whether rum or tobacco is productive of the greatest amount of injury to the human family. We will not here discuss the relative importance of a reform in the two directions. Both are great evils. Both will stand or fall together.

Dr. Arlidge, of England, has recently called attention to the fact that tea drunkards are very common among the women of the laboring classes of that country, and every physician knows that similar cases are not uncommon in this country.

TRUE TEMPERANCE PLATFORM.

The only true platform upon which the cause of temperance will ever find a substantial basis is total abstinence not only from alcoholic drinks, but from every other stimulant or narcotic. There is no room for compromise on this subject. Christian temperance is more radical still, and requires that the appetite must be held within the bounds of moderation in eating as well as in drinking.

Intoxicating Liquors as Medicine.

NUMBER THREE.

BY REV. P. R. RUSSELL.

DR. HAMMOND thinks that in the abnormal state of society in which we are placed the instincts of humanity call for narcotics and alcoholic drinks, and every man must judge for himself how much wine, brandy, and tobacco his system may require! Nothing more ultra can be asked for by the most reckless class of rum-sellers; and yet, this same Dr. Hammond sees danger and sounds the alarm. He says an immoderate use of alcohol engenders a long list of malignant diseases. Hear him:—

"We are now prepared for the long list of diseases and disorders of the nervous system produced by the excessive use of alcohol. The catalogue is made up from my note-books, and is based on cases occurring in my private and hospital practice:—

"OF THE BRAIN.

"Cerebral congestion, cerebral hemorrhage with its consquences, apoplexy and paralysis, meningeal hemorrhage, cerebral thrombosis, softening of the brain, aphasia, acute cerebral meningitis, chronic cerebral meningitis, abscess of the brain, multiple cerebral sclerosis—one of those diseases of which tremor is a characteristic symptom, every variety of insanity, including general paralysis.

"OF THE SPINAL CORD.

"Spinal congestion, altero-lateral spinal sclerosis, posterio-spinal sclerosis (locomotor ataxia).

"CEREBRO-SPINAL DISEASES.

"Epilepsy, chorea, multiple cerebro-spinal sclerosis (another of those affections characterized by tremor) arthetosis—a remarkable disease, which I was the first to describe, and which is now well recognized both in this country and in Europe. The case on which my description was based was one in which the patient was in the habit of drinking sixty glasses of gin daily.

"OF THE NERVES.

"Anæsthesis, paralysis, agitans, neuralgia in all situations, neuritis, neuro-sclerosis.

"It will be noticed that sclerosis, or hardening, is a condition of all parts of the nervous system which alcohol probably often produces. It is doubtless the result of the direct action of alcohol on the nervous tissue.

"In addition to being the exciting cause of many diseases of the nervous system, alcohol probably predisposes to various others in which no direct relation can be traced. Neither does its action stop here, for the descendants of persons addicted to the excessive use of alcohol are liable to various disorders of the nervous system, and there is some evidence to show that offspring generated during a fit of intoxication of either parent are often born idiotic."

Yet, strange to say, this same notable Dr. Hammond recommends the habitual, moderate use of intoxicating drinks—so prolific of the most malignant diseases, so sure to lead millions to utter ruin, and convert them into

maniacs and fools—as healthful and good to check the waste of the system! Is there no other, no better, way to keep up the tone of the system than the drunkard's cup? All experience proves that about nine out of ten cannot drink *moderately*. They can abstain and do well, and keep up the health by observing the laws of health; but if they drink, the appetite, in spite of reason, conscience, and the remonstrances of friends, puts on monstrous devlopments, and they become drunkards. Shall they drink, then?

Alcohol checks the waste, does it, doctor? "Yes." This, then, is of itself a disease. The system in a normal state is all the time throwing off the effete matter. Every breath, every pore, is an outlet, and the waste is just as natural and necessary as the supply. A stoppage, a severe cold, brings on a fever, a congestion. Why? Because the normal waste is checked, and nature has lost her equilibrium. Now, if alcohol does this, in any measure—and it no doubt does—it throws the system into an abnormal state. This is the reason why we find the poor tippler, bloated, haggard, miserable, and always unreliable. He is a poor, sick metho-maniac.

Dr. Dickinson, of London, says, "Persons engaged in the liquor traffic shorten their lives, on an average, 3½ years. Alcohol causes fatty infiltration and fibroid encroachment; it engenders tubercle, encourages suppuration, and retards healing; it produces untimely atheroma, invites hemorrhage, and anticipates age."

But, do the doctors not know? Yes; some of them know. All the hygienic and hydropathic physicians of Europe and America (and they are known to be great experts in dealing with diseases and especially chronic ailments) have utterly renounced and repudiated all alcoholic medication. In their infirmaries the worm of the still has no part nor place, not even for bathing or dressing wounds. They regard the whole thing as a curse, an unmitigated curse and an abominable humbug.

Do the doctors not know? No; some of them do not know. There is any amount of learned ignorance in all the learned professions. Some lawyers are profoundly ignorant of some of the first principles of common law; and if you take their counsel, if you have a full purse for bait, they will have you in the limbos. So of preachers. Many a man with a D. D. attached to his name, is as profoundly ignorant of the plan of salvation as Nicodemus was; and if you follow him, it will be "the blind leading the blind, and both will fall into the ditch." So of the physicians; they are divided into different schools, and practice on different and opposing theories. The allopaths fight the symptoms. The homœopaths aid and develop them. A few points in the form of remedies are settled and agreed upon on all sides. Then comes in the wheel of fortune, always turning, and the *materia medica*, always changing, as time and doctors come and go. Forty years ago, allopathic doctors blistered, bled for fevers, and denied their patients all cold water drinks, and all bathing except alcoholic. Now these things are passed away. Change, change, progress in medical science is the order of the day. Anatomy and surgery are positive sciences, and learning here is valuable and somewhat reliable; but when you come to pharmacy and dosing, there is a world of mystery and of uncertainty as to the composition of the drugs, and how far it is safe to fight one disease by creating a brood of other ills. But do not the doctors know? Some do, others do not. The most of men jog on in the old beaten track and routine practice. They do not do their own thinking. They follow the books, the lectures of the schools, and go on as the horse grinds in the mill, round and round, "obeying orders and breaking owners." Do not the doctors know? It is certain the doctors even of the same school often disagree. If there are inquiring, independent minds among them in counsel, they will not agree with the conservatives.

When James Fisk, jr., was shot, the doctors could not agree as to whether he died from the shot, or the opium and brandy. When Horace Greely died, the physicians could not agree as to the diagnosis of his case. When Charles Sumner was cut suddenly down, the doctors could not agree as to the cause of his death, and a post-mortem examination proved the most skilled physicians in Washington to have mistaken the case.

Amid all the whims and prejudices and conflicting notions which prevail, both in and out of the medical profession, there are two things which may be accepted as settled beyond all reasonable doubt. First, that he who would persuade you to take intoxicating drinks as a medicine is *greatly endangering your character and fortune for time and eternity*. If you drink, you are giving others a pernicious example, and may plunge yourself into ruin. Secondly, he who shall convince you and others that alcohol is a good, a necessary article of food, and a much-needed fuel to keep the fires of life burning, "to keep up the vitality," will surely make you love the intoxicating cup and render you an habitual drinker. Accept the creed of Dr. Curtiss or Dr. Hammond, and the practice is certain. In ever case men will be found to practice as

they believe and preach, and the practice has great control over the preach.

Men who recommend alcoholic drinks to others as good food and good medicine, will be found generally to love the cup themselves. The appetite has much to do with human opinions.

Dinner Time.

HAVING had ten years' experience, under varied circumstances, of the "two-meal system," I will offer a few suggestions to the inquiring school-teacher in the last REFORMER.

The proper hour for taking dinner will depend somewhat on the time of taking breakfast. If the morning meal be taken as early as is usual with laboring people, at or before seven, there will be found no difficulty in dining at half past twelve, or even earlier. All that is required for well-feeling is regularity. The system will readily conform to the habit, and no inconvenience will long be felt with a protracted fast.

In traveling and in visiting among strangers, I very often take dinner at twelve. Notwithstanding the severest tax on my system may come in the evening in public speaking, I do not feel any need of another meal. And after my trial of ten years, I now choose to have my dinner at least as early as half past twelve.

I have known ministers to eat three meals a day, and then call for a lunch about nine in the evening to compensate for the tax of the labor of the evening. Were it not that the human system is very accommodating in cases of abuse, they could not endure it at all. That these ministers early "break down" is not surprising. It is surprising that they often endure as long as they do.

Some times people, where I am, knowing that I will not take the third meal, put off their dinner hour until three or even four in the afternoon, fearing I cannot bear to fast from an early dinner hour to the next morning. This is always attended with discomfort. First, I get very hungry before eating. Secondly, if I have meeting in the evening, I am not as well fitted to speak as if I had eaten earlier. And thirdly, if I feel no inconvenience either at the time of eating or in the labors of the evening, I always feel a disturbance of the system before morning. I have not eaten a very late dinner for years without waking up in the night with unpleasant sensations

I would recommend to a teacher, who wishes to make a change to two meals a day, to take his dinner regularly at the most convenient time, about half past twelve will probably be best, and for a while eat a small quantity of the plainest food about half past five or six. For this light lunch, dry graham bread will be best. Take nothing with it. After a time, drop the lunch entirely. He may feel a little inconvenience at first, but this will soon pass away.

If he is a man of strong will power and acts with determination, he might drop the third meal at once, and he would soon cease to desire it, while the quietness of his rest through the night and the clearness of mind and buoyancy of both body and mind in the morning would well repay him for the trial. I speak from experience, having changed at once from three to two meals a day.

This subject is not sufficiently appreciated by very many who lay some claim to being health reformers. A third meal is a great evil, as all can testify who have thoroughly made the trial. J. H. WAGGONER.

Healdsburg, Cal.

Alcohol: What Is It?

THE chemist describes alcohol as a liquid technically known as *hydrated oxide of ethyl*, containing two atoms of carbon, six of hydrogen, and one of oxygen, and represented by the formula, C_2H_5HO. It is colorless, when pure, and very inflammable, burning with a pale blue flame. It belongs to the same class of chemical compounds with naptha, turpentine, benzine, fusel oil, kerosene, and burning fluid. It is seldom found pure, usually containing from five to fifty per cent. of water, besides various impurities, chief among which is fusel oil, another variety of alcohol.

ORIGIN OF ALCOHOL.

The Creator never made alcohol. No plant upon the face of the earth produces it. No bubbling spring affords it. There is only one way in which it is ever produced; that is, by death. It is one of the products of vegetable decomposition and decay. The process of making it is termed fermentation. Wherever fermentation occurs, no matter whether for the purpose of making alcohol or not, this poison is produced. Thus, the fermentation of wine and beer, the working of cider, and the "raising" of bread are familiar illustrations of the production of alcohol.

Wine is made by fermenting the juice of grapes or raisins. By means of distillation, the alcohol may be separated from the wine, and is then known as brandy.

Beer is made from barley and hops. The barley is first steeped for some hours at a moderate heat, and is then allowed to germi-

nate. After germination has been in progress for a few days, the starch contained in the grain is converted into sugar, which is then fermented with hops and yeast, by which means the sugar is converted into alcohol. The dark colored liquor resulting from the process is made up of water, alcohol, and various impurities, together with a poisonous substance called *lupulin*, from the hops.

Whisky is made by the fermentation of any kind of grain, potatoes, turnips, or any other vegetable product containing starch.

Rum is made by fermenting cheap molasses.

Cider is the fermented juice of the apple. It contains alcohol as soon as it has become in any degree "hard."

In Tartary an alcoholic drink called *koumiss* is made by fermenting milk.

A kind of wine is made in many tropical countries from the fermented juice of the palm tree.

Honey wine, a fermented solution of honey, is used in Abyssinia.

Every country has its peculiar beverages, which are all alike in the one particular of containing alcohol.

WHAT IS FERMENTATION?

Fermentation is one of the stages of vegetable decomposition. It never occurs until after the death of the vegetable product undergoing the change. Alcohol is only produced by this means. The process is excited and maintained by certain microscopic plants or animals, the germs of which are always present in the air ready to develop into active life when favorable conditions of warmth and moisture are supplied. Through the action of these minute bodies, sugar or starch is decomposed into alcohol, carbonic acid, and water.

The following table shows the proportion of alcohol found in various drinks:—

	per cent.		per cent.
Small beer,	1 to 3	Whisky,	40
Cider,	5	Brandy,	50
Ale.	10 to 20	Proof spirit,	50
Wine,	7 to 20	Rum,	58

Nearly all liquors contain other poisons, to which some of their deleterious properties are attributable. Thus, beer and ale often contain tobacco, COCCULUS INDICUS, and green vitriol. Brandy and whisky contain fusel oil and tannic acid. Immense quantities of of wine are made artificially, by diluting alcohol, and flavoring and coloring it in such a way as to deceive the most expert.

Alcohol is very extensively used by physicians. A very large class of medicines is largely composed of it.

COMPOSITION OF BITTERS.

Besides the large class of alcoholic liquors which are distinctly recognized as such, there is another class of compounds of which alcohol is the chief constituent, and which are commonly sold under the alluring titles of bitters, tonics, restoratives, etc. Some of them even claim to be free from alcohol while containing it in notable quantities. The following table shows the amount of alcohol in some of the more common of these filthy mixtures:—

	per cent.
Richardson's Bitters,	59
Hostetter's Stomach Bitters,	43
Plantation Bitters,	30
Puritan Bitters,	25
Quaker Bitters,	23
Temperance Bitters (!)	17
Vinegar Bitters,	7½
Pierce's Bitters,	6⅛

The above table was prepared from the official report of the State assayer of Rhode Island. The chief point of difference between these various alcoholic compounds is in the different proportions of alcohol which they contain.

Purification of the Blood.

DR. R. V. PIERCE, of Buffalo, N. Y., publishes, gratuitously, a little pamphlet to advertise his books and medicines, which has this one particular to recommend it, if no more, that every other page is left blank, and ruled for memoranda and accounts. In the one for 1875, he makes the following statements:—

"A healthy liver secretes each day about two and a half pounds of bile, which contains a great amount of waste material taken from the blood. When the liver becomes torpid or congested, it fails to eliminate this vast amount of noxious substance, which, therefore, remains to poison the blood, and be conveyed to every part of the system. What must be the condition of the blood when it is receiving and retaining each day two and a half pounds of poison? Nature tries to work off this poison through other channels and organs—the kidneys, lungs, skin, etc., but these organs become overtaxed in performing this labor in addition to their natural functions, and cannot long withstand the pressure, but become variously diseased."

I do not quote these statements in order to dispute them. They are all true for aught I know. I presume they are, in the main, at least. But my inquiry relates to another point—the remedy. A little farther on, the doctor says, "The liver being the great depu-

rating or blood-cleansing organ of the system —set this great 'housekeeper of our health' at work, and the foul corruptions which gender in the blood, and rot out, as it were, the machinery of life, are gradually expelled from the system. For this purpose my Golden Medical Discovery, with very small doses daily of my pleasant Purgative Pellets, are pre-eminently the articles needed."

Now the question arises whether it would not be more reasonable to mitigate the task of this overburdened organ, the liver, by taking less of poisonous substances into the system, in the form of disease-producing foods, condiments, and beverages, at the same time encouraging, by proper exercise, pure air, and frequent bathing, the lungs and skin to assist the liver in the work of depuration, than to add to the poisons to be expelled by taking into the system more poisons for the blood, bearing the titles of "medical discoveries," "pleasant purgatives," or "purifiers of the blood." For, be it known that "Pierce's Pleasant Purgative Pellets" are qualified by one more P, implied, though not expressed, as grammarians say—*poisonous*, a quality without which no purgative medicine, however pleasant to the palate, by sugar coating, exists. I would prefer "Peck's Pleasant" apples to the whole *posse-comitatus* of poisonous prescriptions in the world, as purifiers of the blood.

Why not be merciful to the poor, overtasked liver, lighten its burdens, and aid it in its natural work, rather than attempt to goad it on to unnatural efforts by introducing new and foreign elements, mercenary foes, into its domain, diverting it from its legitimate work to combat with these invaders of its rights?

"Reason, say they, belongs to man;
But let them prove it, if they can."

R. F. COTTRELL.

More Opium.

AT a recent convention of physicians, some one inquired for the best treatment of spinal diseases, so common at present. An old practitioner replied, "*Opium! gentlemen, more opium!*"

Now as a physician of reputation and experience gave so decided and ready a reply, it was accepted by the convention as a final and wise conclusion, and that convention returned to their several homes with a higher estimation for the drug opium than ever, and who but the Lord knows how many poor sick people have got their death warrant from the "*ipse dixit*" of this learned and venerable member of the medical fraternity.

The writer of this is no pretender to a knowledge of all the poisons contained in the *materia medica*, but he has used opium in its various forms in obedience to the doctor's prescription in his own case, and he knows it all but kills, and that it leaves its deadly sting in the system. Will some good reformer who is posted give us a full description of the deadly properties of this article, opium, and its effect upon the system?

Once the writer of this was under the care of a doctor who left a budget of morphine and one of quinine, and who also left directions to take small powders of opium and large powders of quinine. By mistake he got the opium in large quantity, and the quinine in small. A friend discovered the mistake in time to arouse him just in the first stages of what might have been his final sleep, and for an hour or so he was most terribly handled to save life. All the time he begged for just one minute to sleep; but his friend was inexorable, and he barely escaped with a sound bruising. Now morphine is an extract of opium, and will some good doctor tell us how this drug could nearly kill us, and yet be so good for people suffering from that terrible disease, spinal meningitis.

JOSEPH CLARKE.

Temperance and Self-Control.

EDITOR OF REFORMER: The following translation from the "Memorabilia of Socrates" may be of interest to many of your readers; it is said, by Xenophon, that this Athenian philosopher "proved himself more a friend to temperance by his life than by his words":—

"If, my friends, when a war was coming upon us, we should wish to choose a man by whose exertions we might ourselves be preserved, and might gain the mastery over our enemies, should we select one whom we knew to be unable to resist gluttony, or wine, or sensuality, or fatigue, or sleep? How could we think that such a man would either serve us or conquer our adversaries? Or if, being at the close of life, we should wish to commit to any one the guardianship of our sons, or the care of our unmarried daughters, or the preservation of our property, should we think an intemperate man worthy of confidence for such purposes? Should we intrust to an intemperate slave our herds, our granaries, or the superintendence of our agriculture? Should we be willing to accept such a slave as an agent, or purveyor, even for nothing.

"But if we would not even accept an intemperate slave, how can it be otherwise than important for every man to take care that he himself does not become such a character?

For the intemperate man is not injurious to his neighbor and profitable to himself—like the avaricious, who, by despoiling others of their property, seem to enrich themselves—but, while he is mischievous to others, he is still more mischievous to himself; for it is, indeed, mischievous in the highest degree, to ruin not only his family, but his body and mind. In society, too, who could find pleasure in the company of such a man, who, he would be aware, felt more delight in eating and drinking than in intercourse with his friends, and preferred the company of harlots to that of his fellows?

"Is it not the duty of every man to consider that temperance is the foundation of every virtue, and to establish the observance of it in his mind before all things? For who, without it, can either learn anything good, or sufficiently practice it? Who that is a slave to pleasure is not in an ill condition, both as to his body and his mind? It appears to me, by Juno, that a freeman ought to pray that he may never meet with a slave of such a character, and that he who is a slave to pleasure should pray to the gods that he may find well-disposed masters; for by such means only can a man of that sort be saved." H. D. CLARKE.

An Uncommon Stomach.

UNDER the above head the Detroit *Evening News* tells a story of "a young man who never ate any meat or vegetables." The *News* is doubtless unaware that there are hundreds of human stomachs in this country and England which have never been polluted by the flesh of animals. The young man's dislike for vegetables is somewhat more anomalous; but even this is not so very strange when it is considered that man is really frugivorous in his dietetic nature. The following is the account given by the *News*:—

"There is in Detroit a young man whose peculiarities entitle him to the cognomen of a dietetic *rara avis*. He is twenty-four years of age, a native of England, and is a clerk in one of the largest wholesale establishments of this city. From the time he was born he has never eaten a particle of flesh-meat in any form. Once, on being importuned, he tasted a piece of roast meat, but immediately spat it out in disgust. Another peculiarity is that he has never eaten fish, potatoes, or any kind of garden vegetables during his life. When he attained the age of twelve years, his parents made an effort to force him to eat meat, fish, and vegetables, and, failing to do so at home, sent him to a boarding-school near London, several hundred miles from his birth-place. Here the school authorities, under the advice of physicians, used every effort to make him conform to the diet of the institution, even going to the extreme length of keeping him virtually imprisoned for four days, during which he absolutely refused to eat the animal food placed before him, and only ate a small quantity of bread and drank a little water. His natural repugnance to flesh, fish, and vegetables, has not been abated one iota by the change of climate and associations. He has a healthy appearance, is of average plumpness, and loses less time by indisposition than the majority of the clerks in the same establishment The writer questioned him as to his repugnance to the several kinds of food, and he answered that he regarded meat, vegetables, and fish, with the same feelings of aversion that he felt toward dirt."—*Detroit Evening News, March 8.*

Dress.—I know of thousands of parents who have received from God a child, and then they turn the young immortal into a dressmaker's doll! As if God had not made the little creature beautiful enough, they must overload it with silks and laces, and then torture its freedom into the thongs and screws of arbitrary fashion.

This overdressing of the body strikes into the heart. How can a stop be put to the crop of fops and fashionists if children are to be trained into foppery and coxcombry from their cradles? How can our children be taught self-denial and spiritual-mindedness while under the artificial wrappings of pride and extravagance?—*Theo. L. Cuyler.*

A Ventilation Joke.—They have a good joke on a "professor of ventilation" down East, who being put into a room at a hotel with another guest, asked the latter to raise a window at night, as the air was so close. "I can't raise it," said the guest, after working at the window a while. "Then knock a pane of glass out," said the professor, which was done. After a while the professor got up and knocked out another pane, then he was able to sleep; but in the morning he discovered that he had only broken into a book-case!

A COUNTRYMAN, walking along in New York, found his progress stopped by a barricade of timber. "What is that for?" said he, to a person in the street. "Oh, that's to stop the yellow fever." "Ay, I have often heard of the board of health, but I never saw one before."

LITERARY MISCELLANY.

Devoted to Natural History, Mental and Moral Culture, Social Science, and other Interesting Topics.

TO SMOKE OR NOT TO SMOKE.

To smoke, or not to smoke—that is the question!
Whether 'tis better to adjure the habit,
And trust the warnings of a scribbling doctor,
Or buy at once a box of best Havanas,
And ten a day consume them? To smoke, to puff,
Nay, more, to waste the tender fabrics of the lungs,
And risk consumption and its thousand ills
The practice leads to—'tis a consummation
Discreetly to be shunned. To smoke, to puff—
To puff, perhaps to doze—aye, there's the rub;
For in that dozing state we thirsty grow,
And, having burned the tube up to a stump,
We must have drink, and that's one cause
We modern youth are destined to short life;
For who can bear to feel his mouth parched up,
His throat like whalebone and his chest exhausted,
His head turned giddy and his nerves unstrung,
When he himself might drench these ills away
With wine or brandy? Who could live in smoke,
And pine and sicken with a secret poison,
But that the dread of breaking o'er a rule
Prescribed by fashion, whose controlling will
None disobey, puzzles ambitious youth,
And makes us rather bear the ills we feel
Than others that the doctor warns us of?
Thus custom does make specters of us all,
And thus the native hue of our complexion
Is sicklied o'er with a consumptive cast;
The appetite, a loss of greater moment,
Palled by the weed, and the digestive powers
Lose all their action.

Physical Characters of Races.

When we see a man or an animal, the first thing that strikes us is its size. Our domestic species are made of great and small races, and it is the same with man.

The extreme dimensions of the human form, whether great or small, have been very much exaggerated. Everywhere there has been a belief in the existence of races of dwarfs and races of giants. For instance, the Greeks believed in the existence of a people, called by them pigmies, whose country they placed sometimes in one direction, sometimes in another, but always beyond the limits of the world they truly knew. These were little men about fourteen inches in hight, who, it was believed, were obliged to pluck down the corn with strokes of the ax, and who passed a part of their time defending themselves against the cranes. In the last century this fable of the pigmies was, so to speak, renewed and applied to the kymos, who were said to inhabit Madagascar. It is needless to add that since we have seen them more closely, pigmies and kymos have disappeared.

The fables relative to giants are the contrary of the preceding. Among these fables there are some modern ones, for a time believed to be founded on real observation. The first voyagers who doubled Cape Horn found there the Patigonians, whose dimensions they singularly exaggerated. Pigafetta, the companion of Magellan in the first voyage round the world (1520), pretended that he and his companions scarcely reached to the hight of their waists. One of his successors, Jofre Loaysa, with still greater extravagance, declared that the heads of the Christians reached only to the upper part of their thighs. This was, you see, to attribute to these people a hight of 13 to 16 feet.

Time and science have done justice to these fables and exaggerations. Let us see what are in reality the extremes presented by the human stature.

It is plain that in this research we must leave out exceptional individuals, of which we see a certain number in the fairs and museums, or anywhere, for money. It is a question neither of General Tom Thumb, whom you have perhaps met sometimes in the Champs Elysées, nor of the French or Chinese giants, recently exhibited in Paris. I will only remark, in passing, that these individual exceptions appear among all nations, although more rarely, perhaps, in the midst of savage populations.

The smallest known race is that of the Bushman, which inhabits the southern part of Africa; the greatest is the Patagonian, of which we just named the country. An English traveler, Barrow, measured all the inhabitants of a tribe of the first; a French traveler, Alcide D'Orbigny, took the exact measure of a great number of individuals belonging to the second of these two extreme races.

It results from these measurements that the mean hight of the Bushman is 4 feet $3\frac{1}{2}$ inches, and that of the Patagonian 5 feet 8 inches. The mean difference between the greatest and the smallest human race is then $16\frac{1}{2}$ inches.

The smallest Bushman measured by Barrow was a woman who was only 3 feet $10\frac{1}{2}$ inches. The largest Patagonian measured by D'Orbigny attained 6 feet 3 inches. The greatest difference existing, then, between normal human individuals is 2 feet $8\frac{1}{2}$ inches. The ratio between the extremes of hight just

named is nearly as 1 to 0.6. These figures signify much and lead to important consequences.

First, the difference in size among our domestic animals is much greater than that above indicated. From the great dogs that promenade in our court-yards, down to certain dogs which have figured at dog shows, the ratio is 1 to 0.3. The difference is also as great between the large brewers' horses of London and horses from Shetland, which are sometimes not larger than a Newfoundland dog. These horses and these dogs are, however, only different races of a single species. One cannot reason, then, from differences of hight to sustain the multiplicity of human species.

There is another consideration not less important:—

From all the data I can gather, it results that the mean stature of men, the world over, is about 5 feet 3 inches. But this mean, like that given above, results from very numerous and very diverse hights. If in thought we place all men in one line according to their hight, it is easy to see that we should obtain a series in which the difference from one to the next will not be, perhaps, the $\frac{1}{2500}$ of an inch.

If you observe several portraits representing individuals of the white race, you may see that their tint is sometimes as dark as that of the Guinea negro. In the portrait of Rammohun-Roy, the celebrated Brahmin reformer, the fineness and regularity of his profile attest that he is of the purest Aryan blood, and his color is that of a negro just a little blanched. Again, there are Abyssinians whose features recall the fine Semitic type, and yet few negroes surpass them in blackness. So all black men are not negroes. Reciprocally, Livingstone has found in the center of Africa negroes of the color of *café au lait.*

The color of the human race varies from white, such as is seen in Dutch and Danish women, to violet or yellow, to yellow-citron or smoke, to copper-red or brick. By appealing to your recollections, you can establish a series passing from light to dark by insensible shades such as could scarcely be reproduced upon the palette of a painter.

Recollect that some of these extremes of color are frequent among domestic animals, and are sometimes much greater. With black hens, it is not the skin alone that is colored. All the great interior membranes, the sheaths of the muscles, the aponeuroses, as well as the flesh of the wings, present an aspect very little appetizing. So it is sought to weed them out of the poultry-yard; and still in certain parts of the globe they are constantly produced, and would evidently soon become a race if left to multiply. Here, again, in the case of animals, the difference from race to race is much greater than in the case of man.

Sometimes, in the presence of variations of color like these we have described, we ask if, between the negro and the white, there do not exist anatomical differences in the skin. The minute study of this organ answers us in the negative.

The skin is composed of three layers, which together constitute a true organ having its proper functions. So it is often called the *cutaneous organ.* On the exterior is the *epidermis*, that dry and insensible layer which covers the entire body, and protects it against the action of outer agents.

Interiorly, and immediately above the greasy body, is the true skin, which is the essential and living part of the cutaneous organ; it is this which receives the blood-vessels and nerves.

Between the true skin and the epidermis is a dark layer, composed of distinct cells. It is the mucous membrane of Malpighi, so named from the anatomist who first described it. The cells that form it are a simple secretion of the true skin. It is this layer which is the seat of color. It exists in all men, but the cells that it contains are more or less colored according to race. In whites themselves, in certain parts of the body, around the nipples, in the specks of freckles, in the beauty-spots, etc., we sometimes see them as deep as in the negro.

You see that the color in different human races is, when developed, only a phenomenon of local coloration, of exactly the same nature as those we encounter in races of domestic animals.

To the skin are attached a certain number of organs, which may be considered as adjuncts to the cutaneous organ. These are chiefly the villosities or hairs, the sebaceous glands, and the sweat-glands. Between these annexed organs there exists a certain balance which physiology explains. So in glabrous races, that is, races with little or no villosities on the body, the sebaceous apparatus is much more developed. This fact is very marked in the African negro, whose skin sometimes bears slight prominences, sketching a sort of arabesque by the extraordinary development of these little organs.

It is to the development of the sebaceous apparatus that the odor developed by the negro is due. This odor is so strong, so persistent, that it suffices to the identification of a negro-ship a long time after it has left the

trade. But it is not negroes alone that are characterized by malodorous exhalations. It is the same with the whites themselves. You all know that a dog follows his master by the scent. Savage people, whose senses are more exercised than ours, distinguish very quickly the general odor which characterizes a race; and, in Peru, they give special names to that of the white and of the black as well as to their own.

As to the hair which may be seen on different parts of the body, a special mention is due to that of the head. All people have more or less hair on the head, and this gives also very good characters. Among these the most essential are drawn from the form presented by the transverse cut when examined under the microscope. In the yellow people, the Americans and the white allophyles, this cut is more or less circular. In the Aryans, of which we are a part, it is oval; in the negroes it takes the form of an elongated ellipse. It is evident that a circular cut indicates a cylindrical hair. Such hair is very coarse and stiff, and never curling or frizzled; an oval cut indicates a slight and regular flattening. In this form the hairs are finer, and may be made into curls or waves more or less marked. Finally the elliptical cut can only appear when the hair is much flattened, almost like a thick ribbon. These are the finest, and these alone have the aspect of wool which characterizes the head of the negro.

Crosses between these different races sometimes produce very remarkable heads of hair. The negro crossed with the Brazilian produces the Cafuso, whose hair, forming an immense wig, is at the same time long, stiff, and kinked.—*Prof. A. De Quatrefages.*

Genius and Labor.

GENIUS has been defined many times as industry, or a capacity for hard and protracted labor. The correctness of this definition is sustained by the example of a large number of eminent authors whom the world has by common consent regarded as men of genius. At the head of the list stands Plato, whose flowing lines, that glide as from a swift-running pen, were really the product of slow and tedious elaboration. There is an anecdote that the opening sentence of "The Republic" was found on the author's tablets written in thirteen different versions. When finally summoned by death to cease from his labors, the philosopher was sitting at his desk, as Dionysius says, "combing, and curling, and weaving and unweaving his writings, after a variety of fashions." Plato was eighty-one years of age when called "to join the great majority beyond."

Addison, whose graceful, unaffected style has excited the envy and admiration of cultivated readers, composed with painful deliberation. The press was frequently stopped after nearly a whole edition of the *Spectator* had been struck off, in order that he might change a preposition in one of his sentences. While he held the position of Under-Secretary, it fell to him to communicate to Prince George of Hanover intelligence of the death of Queen Anne and the vacancy of the throne. The fastidious author was so puzzled to make a choice of expressions in which to convey the news that finally the task of writing the Prince was given to a clerk, who boasted of having done what Addison found impossible.

Lamb expended immense labor upon his humorous essays—the delicate, dainty fancies being fashioned with the most critical nicety. It is said that a playful letter to a friend often cost him the work of a week. Buffon was fifty years completing his "Studies of Nature," and copied the entire work eighteen times ere it was finally dispatched to the printer. "He composed in a singular manner—writing on large-sized paper, in which, as in a ledger, five distinct columns were ruled. In the first he wrote down the first thoughts; in the second, he corrected, enlarged, and pruned it; and so on, until he had reached the fifth column, within which he finally wrote the result of his labor. But, even after this, he would recompose a sentence twenty times; and once devoted fourteen hours to finding the proper word with which to round off a sentence."

La Rochefocauld spent fifteen years in preparing his little book of "Maxims," altering some of them nearly thirty times. John Foster often pondered hours over the construction of a single sentence; and Rogers worked a fortnight over a note to his "Italy," that embraced a very few lines.

Gibbon says of the manner in which he labored over the "Decline and Fall of the Roman Empire": "Many experiments were made before I could hit the middle tone between a dull tone and a rhetorical declamation; three times did I compose the first chapter, and twice the second and third, before I was tolerably satisfied with their effect."

Albany Foublanque, the editor of the *Examiner*, of whom Leigh Hunt once remarked that he was the successor "of the Swifts and Addisons themselves—profuse of wit even beyond them, and superior in political knowledge"—wrote very slowly. The utmost he

was ever able to produce was two or three editorials a week, and these were many times revised. It was not a singular occurrence for him to rewrite an editorial ten times.

Sainte-Beuve, the brilliant French critic, regularly gave about four toilsome days to each of his weekly articles. A portion of his time was spent in the seclusion of his apartments, to which, during that interval, no person save his servant was admitted upon any pretext.—*Sel.*

Ancient Engines of Warfare.

THE members of the Geographical Congress assembled in Paris recently, paid a visit to the museum of St. Germaine, and the correspondent of the Journal of the Society of Arts says, "The interest of this city centered mainly in the exhibition of the modern reproductions of ancient offensive and defensive weapons of warfare, and in the practical and experimental demonstrations of their use and power by actual example. The visitors were received at the Gallo-Roman Museum by the director and sub-director, MM. Bertrand and DeMortillet, as also by M. Abel Maitre, engineer in chief of the workshops attached to the institution, the skillful constructor of these reproductions of ancient military appliances. These latter were deemed necessary by the late emperor, Napoleon III., for the work of preparing his 'Life of Cæsar'—rendered for the moment a familiar subject here by the trial of the action brought by the executors of the publishers, MM. Plon et Cie, against his majesty's executors, to recover $6,000 damages for non-completion of the work and non-fulfillment of contract, in which the Paris Tribunal has just nonsuited the plaintiffs—and in consequence the present collection was made of the dimensions and materially as described by Latin authors. A range had been prepared and marked out at ten-metre intervals (eleven yards, or half a chain); and M. Matre exemplified by the exercises the use and power of each weapon. Commencing with the javelin or dart fitted with the appliance called the *amentum* or loop attached to the center of gravity, whereby the range is greatly increased, it was shown that a distance of sixty yards was attained against the wind, seventy-two yards having been attained under more favorable circumstances. The *pilum* or Roman javelin came next; this consists of a pointed iron head let into a handle of wood like a harpoon, and about six and one-fourth feet long, and was the favorite weapon of the Roman soldier at about twenty yards distance prior to an onslaught with the sword. This was followed by small iron-pointed darts, discharged with a sling to a great hight, and falling point downwards some seventy or eighty yards off. As a variety of those hand weapons the use of the *assegai*, with the aid of the wooden *wummera*, was illustrated, ranging seventy or eighty yards, with surprising accuracy. Subsequently the machines of the catapult class were set in action; first, the *onager*, consisting of a strong wooden lever affixed between two tightly twisted knots of cord, attached to a stout, heavy, wooden frame; the outer end of the lever is drawn back by means of a winch, and then made fast by a cord passing through a hook; a sling fastened to the free extremity of the lever contains the heavy missile, when, on the cord being slipped by a trigger, the tension of the cords forces the lever forward with great force, projecting the heavy mass to a considerable distance, such as one hundred and forty to one hundred and eighty yards. The *balissa* is constructed on somewhat similar principles, the strain or torsion on twisted cords drives an arrow, dart, or other projectile, placed in a groove, in a straight line, and with a very flat trajectory, direct to the mark."

"I Wish I Had Capital."

"I WISH I had capital." So we heard a great strapping young man exclaim the other day in our office. We did want to tell him a piece of our mind so badly, and we'll just write to him. You want capital, do you? and suppose you had what you call capital, what would you do with it? Haven't you got hands and feet, and muscle and bone and brains? Don't you call them capital? What more did God give to anybody? "Oh, they are not money," say you. But they are more than money, and no one can take them from you. Don't you know how to use them? If you don't, it is high time you were learning. Take hold of the first plow or hoe or jack-plane or broad ax that you can find, and go to work. Your capital will soon yield you a large interest. Ay, there is the rub. You don't want to work; you want money or credit that you may play gentleman and speculate, and end by playing the vagabond. Or you want to marry some rich girl who may be foolish enough to marry you for your good looks, that she may support you.

Shame upon you, young man! Go to work with the capital you have, and you'll soon have interest enough upon it and with it to give you as much money as you want and

make you feel like a man. If you can't make money upon what capital you have, you could n't make it if you had a million dollars in money. If you do n't know how to use bone and muscle and brains, you would not know how to use gold. If you let the capital you have lie idle and waste and rust out, it would be the same thing with you if you had gold; you would only know how to waste it.

Then, do n't stand about like a great helpless child, waiting for some one to come in and feed you, but go to work. Take the first work you can find, no matter what it is, so that you may be sure to do it well. Yes, whatever you undertake, do it well; always do your best. If you manage the capital you already have, you will soon have plenty more to manage; but if you can't or won't manage the capital God has given you, you will never have any more to manage.—*Puget Sound Express.*

Reptiles in the Stomach.

THE following from the *Medical and Surgical Reporter* ought to ease the minds of those who imagine themselves to be tenanted by loathsome reptiles, as the *Reporter* is good authority:—

"Such stories are the consummation of folly, and he must be an ill-educated doctor (if educated at all) who could send forth such a *farrago* of nonsense. That a very small reptile might crawl into a child's mouth may be true; but that any animal, not bred in the human stomach, could live there any length of time, is so utterly at variance with all the laws of physiology and digestion, that none but ignoramuses ever credit them. We have some pious frauds to give on this subject, but not now.

"Physicians know that there are certain entozoa that exist in the human organism, and often cause distressing symptoms and continued ill health. But that a 'snake' or a toad, or other reptiles, could maintain an existence in the stomach for two hours, much less two years, is a fiction that our profession should lose no opportunity to combat. Cases where reptiles are supposed to exist in the stomach are most likely of a hysterical character, and the contortions of the reptile, its 'gnawing,' and its violent efforts to escape from its prison-house, all imaginary.

"We once had a patient, a very respectable lady, who fancied that she had a snake in her throat that was trying to escape. She could feel it with her finger! Would open her mouth, and wonder that we could not see it and pluck it out. She forewarned us that it was of no use to try to convince her that there was nothing there, for she knew better—had turned away several physicians because they would not believe her. There was nothing left but to prescribe something. We succeeded in course of time in relieving her partially, at least, of the irritation in her throat, but she insisted that our remedies were bringing the reptile away by piecemeal!

"We have heard of a case in which the patient insisted that she had a toad in her stomach. Her physican at last admitted her statement, and prepared to relieve her mind in this way: Giving her an emetic, he awaited its operation; in his officiousness, in supporting her head as she vomited, he managed to cover her eyes, while he adroitly threw a live toad into the vessel. It was enough; the patient, with a 'I told you so,' was cured from that hour.

"Such a 'pious fraud' was perhaps excusable under the circumstances; but it is always better, and much more in accordance with the spirit of our calling, if we can cure the hallucination by removing the ill-health that causes it."

Will you Take the Responsibility?

A YOUNG man in Virginia had been sadly intemperate. He was a man of great capability, fascination, and power, but he had a passion for brandy which nothing could control. Often, in his walks, a friend remonstrated with him, but in vain; as often, in turn, would he urge his friend to take the social glass, in vain. On one occasion, the latter agreed to yield to him, and as they walked up to the bar together, the bar-keeper said:—

"Gentlemen, what will you have?"

"Wine, sir," was the reply.

The glasses were filled, and the friends stood ready to pledge each other in renewed and eternal friendship, when he paused, and said to his intemperate friend:—

"Now, if I drink this glass and become a drunkard, will you take the responsibility?"

The drunkard looked at him with severity, and said:—

"Set down that glass."

It was set down, and the two walked away without saying a word.

Oh! the drunkard knows the awful consequence of the first glass. Even in his own madness for liquor, he is not willing to assume the responsibility of another's becoming a drunkard.

What if the question were put to every liquor dealer, as he asks for his license and pays his money, "Are you willing to assume the responsibility?"

How many would say, if the love of money did not rule them, "Take back the license!"

Drinkers and Smokers Need not Apply.

THE New York *Herald* of a recent date contained the following advertisement :—

" Wanted—A few young men lately landed, to work in a distillery store; *those who smoke, chew, or drink, need not apply.* Wages $15 a month and board. Apply ——, West —— Street."

We think this is the best commentary that we have met with upon all the blatant nonsense talked and written by liquor dealers and their advocates, including the N. H. *Union*, about the folly and fanaticism of teetotalers and prohibitionists, and the necessity for men to use stimulants. When distillers want employees themselves, " those who smoke, chew, or drink, need not apply."

How soon will this be the rule in the church, the Sunday-school, the Christian ministry, business houses, banking and insurance companies, and State and nation? How soon?—*Commonwealth.*

He Won his Case.

ALEXANDER STEPHENS, of Georgia, tells this story : A Dr. Royston, doubtless a most excellent man, had sued Peter Bennet, a farmer, for his bill. " Little Aleck," as Alexander is minified by his friends, told his client, Peter B., that the case of service and its value, were proved against him in legal form, and that there was no real defense. But the old farmer insisted that his lawyer should " speak to the case." Mr. Stephens told him that he ought to speak himself if he thought a speech could be made, and was surprised by the retort : " I will, if Bobby Toombs won't be too hard on me," Mr. Toombs promised, and Peter Bennet began :—

" Gentlemen of the jury, I ain't no lawyer and no doctor, and you ain't, nuther. And if we farmers do n't stick together, these here lawyers and doctors will get the advantage of us. I ain't no objections to lawyers and doctors in their place, and some is clever men, but they ain't farmers, gentlemen of the jury. Now this Dr. Royston was a new doctor, and I sent for him to come to doctor my wife's sore leg. And he did, and put some salve truck on it and some rags, but never done it a bit of good, gentlemen of the jury. I do n't believe he's no doctor, no way. There's doctors as I know is doctors, sure enough, but this ain't no doctor at all."

This was evidently telling, and Dr. Royston put in with, " Look at my diploma, and see if I am not a doctor."

" His diploma ! " said the new-fledged orator, with great contempt. "That ain't nothin', for no piece of paper ever made a doctor yet."

" Ask my patients," shouted the now furious physician.

This was the conventional straw that seemed to break the back of the orator's patience. " Ask your patients ! " he said, in slow and mournful deliberation. " Ask your patients ! Why, they're all dead ! " Then, in rapid declamation, he named case after case, well known, but mostly among the negro servants of his neighbors, where his opponent had treated them and their owners buried them, and continued : " Ask your patients ? Why, I would have to seek them in the lonesome churchyard, and rap on the silent tomb to get answers from the dead. You know they can't say nothin' to this case, for you've killed them all ! " The applause closed the speech, and the defendant had his case.—*Sel.*

A Baby's Soliloquy.

I AM here. And if this is what they call the world, I do n't think much of it. It's a very flannelly world, and smells of paregoric awfully. It's a dreadful light world, too, and makes me blink, I tell you. And I do n't know what to do with my hands ; I think I'll dig my fists in my eyes. No, I won't. I'll scrabble at the corner of my blanket and chew it up, and then I'll holler ; whatever happens I'll holler. And the more paregoric they give me, the louder I'll yell. That old nurse puts the spoon in the corner of my mouth in a very uneasy way, and keeps tasting my milk herself all the while. She spilt snuff in it last night, and when I hollered, trotted me. That came of being a two days' old baby. There's a pin sticking in me now, and if I say a word about it, I'll be trotted or fed ; and I would rather have catnip tea. I'll tell you who I am. I found out to-day. I heard folks say, " Hush, don't wake up Emeline's baby ;" and I suppose that pretty white-faced woman over on the pillow is Emeline.

No, I was mistaken ; for a chap was in here just now, and wanted to see Bob's baby ; and looked at me and said I was " a funny little toad, and looked just like Bob." He smelt of cigars. I wonder who else I belong to. Yes, there's another one—that's " Gamma." " It was Gamma's baby, so it was." I declare I do not know who I belong to ; but I'll holler, and maybe I'll find out. There comes Snuffy with catnip tea. I'm going to sleep. I wonder why my hands wont go where I want them to.

DIETETICS.

"Eat ye that which Is Good." As a Man Eateth, so Is he.

Unfermented Bread.

"THREE pounds wheat-meal, or graham flour, three drams carbonate soda, three drams muriatic acid, one and three-quarters pints of cold water; common baking soda is preferable to the bi-carbonate soda usually procured at a druggist's. It and the muriatic acid may be bought at any wholesale druggist's, at very much less cost. The acid is about twenty-five cents a pint, and I use a measuring glass with the drams and ounces marked on it. The soda should be well dried and sifted into the flour and well mixed. Put no salt in. Mix the acid and water together and wet the meal thoroughly. Bake at once in high, slanting pans."

Thinking there might be others as ignorant of the dietetic (?) properties of muriatic acid as I have been, I enclose a receipt for making graham bread which I clipped from the culinary department of a family newspaper. It was given in answer to the inquiry of a correspondent how to make graham bread without yeast or cream tartar. I have not tried the receipt, my acquaintance with muriatic acid being limited to the mending of tin ware.

Very truly yours,

E. H. WHITNEY.

Such receipts as the above are found in nearly every family newspaper and receipt book in the land. The prevalent idea seems to be that if bread is only made of graham flour, all the requisites of good bread are secured. Fermented bread is vastly superior to the caustic conglomeration described in the paragraph quoted above.

Oatmeal.

THIS superb article of food is made from oats by first removing the husk, and then grinding the remainder to the requisite fineness. The whole kernels, with the husks removed, are known as groats. The husk is innutritious and irritating to the digestive organs.

Prepared in various wholesome ways, oatmeal is one of the most nutritious of all farinaceous foods. It is even superior to wheat meal. It requires, however, longer cooking to develop its best qualities and render it easy of digestion. It should be cooked for several hours, when used for pudding, gruel, or porridge, in a double boiler. The groats require longer cooking than the ground grain.

Oatmeal is a most excellent food for brain workers and children, since it contains the appropriate elements out of which nerve tissue and brain substance are made. There are few people who do not like this article when properly cooked. One of the great reasons why many people abandon oatmeal upon a first trial is that they fail to procure a first-class article. That which is found in the stores is almost always stale. When the meal is imperfectly dried, or when allowed to gather moisture, it becomes musty, and acquires a bitter taste, which renders it quite unpalatable. Care should be taken to secure the very best article fresh from the manufacturer. The best oatmeal in the world is made by Mr. Schumacher, whose card will be found in the advertising columns. Scotch and Canada oatmeal are far inferior to the article manufactured by Mr. Schumacher.

OATMEAL GRUEL.

When properly prepared, this is one of the most suitable articles for fever patients that can be prepared. It is easy of digestion, and is usually well relished. In preparing it, boil half a teacupful of oatmeal in a quart of water for one to three hours. It is better to add the meal to cold water and bring it slowly to a boiling heat. Be careful to avoid scorching it; a double boiler is best to secure an even and moderate temperature. If the grains are very coarse, it is well to put the gruel through a colander, when done, to remove fragments of hulls and unsoftened grains, especially for infants and invalids.

The meal may be cooked in half an hour if previously soaked over night. Oatmeal porridge is a most excellent breakfast dish. With the addition of a little milk, no one will dislike it.

Numerous other recipes for cooking oatmeal will be found in "Healthful Cookery."

Tea and Coffee.—Mr. John McBoyle writes us as follows: "A friend of mine says he does not believe your tea and coffee tract. He says his wife, in making tea, does not get a *chemical extract*, but simply an 'aromatic veg-

etable infusion,' which triple term being so sonorous, it smooths away every hygienic objection."

There are many who attempt to answer the objections to the use of tea by a similar argument. Doubtless, those who advance the argument are wholly sincere in the belief that it is conclusive; but they are wholly mistaken, nevertheless.

A "chemical solution" is not necessary to extract the poisonous theine from tea, or caffeine from coffee. All that is required is the application of a moderate degree of heat. It cannot make the slightest difference whether the heat is applied by the chemist or by the cook; the poison is liberated just the same, and its effects are identical.

"Sonorous" terms too often pass for logical arguments, but they will not do in this case. Dr. Edward Smith, of London, in experimenting upon the effects of tea, fell to the floor insensible—in which condition he remained for some time—in consequence of drinking just such an "aromatic vegetable infusion" as is prepared by your friend's wife, it only differing in being prepared from a little greater quantity of the article. Vegetable infusions are often quite as fatally poisonous as chemical extracts.

Digestibility of Milk.—It is well known that cow's milk is often found to be difficult of digestion by invalids and infants. The reason of this is that the caseine of the pure milk is coagulated by the gastric juice in such large masses that their solution is difficult. The attempt has been made to correct the difficulty by the addition of lime water to the milk, which seems to have the property of causing the caseine to coagulate in small granules, instead of large masses. The caustic character of lime water has been the great objection to its use.

Dr. Carter, of London, has recently shown by experiments that barley water is much better than lime water for this purpose. In this we have an agent which is perfectly harmless, and is somewhat nutritious.

Barley Water.—Boil two tablespoonfuls of best pearl barley in a quart of water until it is "smooth;" then strain it through muslin, and it is ready for use.

Spring Eating.—In the winter the system requires an additional supply of food, much of which is used as fuel, being burned to maintain animal heat. Upon the approach of warm weather, the extra supply of food should be diminished, or else the health will suffer. When the blood becomes charged with carbonaceous materials which are not needed, and so are unused, all of the functions are interfered with, the excretory organs are clogged, and digestion is impaired.

A large share of the annual spring sickness might be avoided by attention to diet. The large use of meat and animal fats is especially productive of spring fevers. Grains and fruits, either fresh, dried, or canned, should constitute the bulk of the food. Vegetables are also nourishing when well cooked, though less so than grains. In the spring there are two evils which should be avoided in eating vegetables: 1. Eating those which are deteriorated by age; 2. Eating those which are immature. Potatoes which have sprouted considerably should be rejected. If they have sprouted at all, every particle of the sprouts should be removed, as they are quite poisonous.

THE HANDS THAT CAN MAKE GOOD BREAD.

You may talk to me of accomplished girls
  With "hands as white as the lily;"
And of melting blue eyes, and auburn curls,
  But I think that decidedly silly.
But when any one mentions a lady's hands,
  The question pops into my head,
Not of their beauty and golden bands,
  But, *Can they make good bread?*

There are hands that are skillful with pencil and brush,
  And can paint a landscape or face;
That can write sweet notes, and color a blush,
  With the greatest beauty and grace.
Perhaps you will call me a gluttonous churl,
  But, for one, I prefer instead,
A matter-of-fact and sensible girl,
  With hands that can make good bread.

There are hands that can play the piano with ease,
  And finger the lively guitar;
Can crochet and embroider, and all such as these—
  More worthless than useful by far.
These are all very pleasing to ear and to eye,
  But when you come to be fed,
You will find no hands beneath the sky
  Like those that can make good bread.

We have troubles enough in a world like this,
  But one thing lessens it much—
Brings household peace and domestic bliss—
  And that is good dinners and such.
If you ever get tired of the world's busy strife,
  And take a notion to wed,
Don't fail for your life to get a wife,
  With hands that can make good bread.

WM. T. HORNADAY.

HOSTESS to little girl: "Why won't you drink some wine?" Little girl: "I don't like it, ma'am." Hostess: "Oh take a little for your stomach's sake." Little girl: "I ain't dot no tommick's ache."

—A man may as well expect to grow stronger by always eating, as wiser by always reading.—*Collier.*

THE

HEALTH REFORMER.

BATTLE CREEK, MICH., APRIL, 1876.

J. H. KELLOGG, M. D., EDITOR. TERMS, $1.00 A YEAR.

Household Medicine.

CHILBLAINS.

THIS troublesome affection, though seemingly insignificant, often makes existence almost a burden by its constant irritation. It is easily cured, but not by the application of any sort of salve, ointment, liniment, or quack nostrum, no matter how highly recommended.

Just before retiring, prepare two vessels for a foot-bath. Place in one, water as hot as can be borne, and in the other, very cold water. Place the feet first in the hot water for two minutes, then in the cold water for the same time. Alternate thus four or five times, merely dipping the feet in the cold water the last time, and then wiping them dry. Repeat this treatment every night until the cure is effected. Improvement will begin at once.

Wear thin cotton stockings inside the woolen ones, and avoid exposing the feet to severe cold until they are well. A general bath twice a week is necessary.

Chilblain is usually more the result of warming the frosted part too quickly than of the cold to which it has been subjected. Hence, the best preventive is to avoid applying heat to chilled or frozen parts too suddenly. The temperature should be gradually raised, either by remaining in a cool room until the circulation is restored by rubbing, or by placing the part in cool water and allowing it to warm gradually in this way. Snow may be used to advantage, being rubbed upon the part.

The excessive irritation of frosted parts is sometimes much relieved by the application of cream or sweet oil.

DIPHTHERIA.

This disease is very common at this season, often appearing as an epidemic. It is justly regarded as a dangerous disease, though its gravity is much lessened by rational methods of treatment.

The disease may commence with a sudden chill, followed by a high fever, or its beginning may be gradual, being accompanied by feelings of general discomfort. The local manifestations of the disease are usually in the throat, upon the fauces, tonsils, and soft palate. These parts are at first reddened; then they become swollen, and whitish patches of false membrane appear upon them. Sometimes the irritation and false membrane extend over the whole inner surface of the mouth, into the nasal cavity, and down into the œsophagus and trachea, adding greatly to the gravity of the affection. Particles of mucus should not be mistaken for false membrane. The former can be easily removed, while the latter adheres quite firmly until it is loosened by ulceration.

The throat affection usually receives the chief attention, but it is, in reality, not the disease itself, but only one of the results of the disease. Proper treatment should be applied, not only to the throat, but to the whole body.

The general fever may be allayed by the employment of sponge-baths and packs. The head must be kept cool and the feet warm. The sick room should be well ventilated, in order to carry away as rapidly as possible the foul germs which result from the disease, and thus prevent their reabsorption into the blood. The diet should be plain and light, though enough should be given to sustain the nutrition of the patient. Oatmeal gruel and

mild fruits are usually well received. Milk may be employed when the patient has been accustomed to its use. The same regularity in meals should be observed, as in health.

The local treatment is of much importance, though it is of little utility without general treatment. It chiefly consists in the application of cold to the outside of the throat, in the severer cases, and the use of alternate hot and cold applications in milder ones. When there is a great degree of inflammation in the throat, small bits of ice may be held in the mouth of the patient and allowed to melt gradually.

Cold may be applied by pounding ice and folding it in a towel, and then laying this upon the neck. Snow may be used in the same way.

A gargle of lemonade, or water acidulated with vinegar, is often very grateful to the patient. Permanganate of potash in weak solution may be used in the same way. Pure lemon juice should be applied directly to the patches in severe cases.

School-Room Poisoning.

FEW parents are aware of the injury which their children are daily suffering in the school and recitation rooms, where they spend six hours of their time, five days in each week. We are not exaggerating the matter in the least when we assert that there is not one in ten among the educational institutions of the country in which the students do not suffer as much physical damage from the unhealthful conditions and surroundings as they receive benefit in the direction of mental training and culture from the educational advantages afforded them.

We wish to call attention to a very few of the evils to which school children are exposed, and some of the results of the same.

1. Notwithstanding the abundance of fresh air, and its cheapness, there is scarcely an architect in the country who can be made to appreciate the importance of providing for a liberal supply in the construction of school buildings. Paneled doors, magnificent staircases, and elegant seats are prepared, but no adequate or efficient means is provided for the admission of oxygen. Neither is any proper means provided for the removal of the foul excretions resulting from respiration. Penned up in close rooms, the delicate lungs of children are made to inhale over and over again the poisonous emanations from a hundred pairs of lungs, from the surface of a hundred bodies, from foul stomachs, and rotten teeth. A mouse, shut up in its own exhalations, will soon die. Is it any wonder that so many delicate children die?

Suppose our school room is thirty feet wide, fifty feet long, and twelve feet high, and contains one hundred students; how long would the air remain fit to breathe if not changed? The problem is a very easy one. Each breath renders unfit for breathing—or, in other words, poisonous—three cubic feet of air. Children breathe, upon an average, at least twenty times a minute. In *one minute*, then, each child would poison *sixty cubic feet* of air. One hundred children would poison one hundred times sixty, or 6,000 cubic feet of air per minute. A room of the dimensions described would contain just 18,000 cubic feet of air. If one-third of this is poisoned in a minute, the whole air in the room would become unfit to breathe in just *three minutes.*

We do not mean that the air would become so foul as to produce suffocation, in so short a time, but only that it would become so charged with poisonous matters that it could not be further used without producing disease.

In view of such facts, who can wonder at the apparent dullness and stupidity of many students, and the complaints of headache, lassitude, and unaccountable lack of energy which many students utter? Every human being requires 3,000 cubic feet of pure air every hour for the purpose of respiration; and when deprived of this abundant supply, suffering and disease result. Breathing air which has been rendered impure by previous respiration is recognized as one of the chief causes of that grave malady, consumption. Thousands of victims who yearly die of this disease received the first germs of it in the school room. One of the great crimes of perverted civilization is the deprival of growing, developing humanity of "God's free oxygen."

2. Another one of the most prominent evils to which school children are subjected, is the breathing of dry air. The presence of

a certain degree of moisture in the air is essential to health. This the air naturally contains. It amounts, in two hundred pounds of air, at 32°, to about one pound. If the temperature of this air is elevated to 59°, it will contain twice as much moisture as at 32°, provided it can get it. If no other means of supply is provided, it will abstract the extra pound required from the skin and mucous membrane of the air-passages of those who breathe it. This causes dryness of the skin and mouth, irritation of the air-passages, sore eyes, and numerous other disturbances.

We are glad to see that the members of our State Board of Health are agitating this question and calling the attention of the people to it. It cannot receive too much attention.

Cancers.

A CORRESPONDENT requests an article relating to the nature of cancers and the methods of cure which are to be adopted. We give a very brief summary of the subject.

Cancer is not an animal, as many suppose. It does not "eat up" the body, as we are sometimes told. It is not, in its early stages, even a blood disease, but is wholly local in its character and origin, although there may be an hereditary or acquired predisposition of the system to the disease.

The tissues found in cancers are not different from those which are found in various portions of the body. They are, however, often out of place, and frequently become greatly increased in size.

After the cancerous disease has progressed for some time, the whole system becomes affected, and the disease is no longer a local affection.

CAN CANCERS BE CURED?

Yes; they can always be cured while the disease is still local. After the whole system, or a considerable portion of it, has become impregnated with the disease, an absolute cure is no longer possible. Hence, persons having cancer should take immediate steps for the cure of the malady before it becomes incurable; and no one can tell the exact point of time when a cure becomes impossible. Delay is hazardous in the extreme.

HOW TO CURE CANCERS.

The remedies for cancer have been as numerous as the drugs in the materia medica; for scarcely a vegetable or mineral poison can be mentioned which has not at some time been recommended as a sure cure for this dreadful disease. Quacks have gathered a rich harvest of filthy lucre from the hopeless victims of this disease; and they still do a most thriving business in the same line.

The numerous remedies for cancer have attained celebrity by their apparent cure of diseases which were *not* cancer, though pronounced so by the proprietors of the nostrums. Cundurango, sarsaparilla, clover blossoms, and sundry other herbs which in many cases were wholly inert, have each enjoyed its season of popularity as a remedy for cancer. At one time a certain spring in New England became greatly renowned for the healing influence said to be exerted by its waters upon cancer. Hundreds resorted to it, not one in twenty of whom had the disease. There were, of course, numerous *cures*. Curious doctors sought to unravel the secret of this wonderful spring by an analysis of its waters. The analysis, made by expert chemists, determined the fact that the only peculiarity of the water was its *remarkable purity*. It was soft and pure. The strange perversity of human nature is clearly manifested in the fact that as soon as this became known, the patronage of the spring ceased; and its waters are no longer included in the list of cancer remedies. If the chemist had discovered a little iodine, or osmium, or sulphureted hydrogen, or some other poison, very likely a thousand quacks would have seized the idea, and soon flooded the market with as many patent compounds warranted to contain the poison in a concentrated and purified form; and the spring would have retained its notoriety.

The only remedy which offers any chance for cure, is destruction of the cancerous growth. If this is done thoroughly, while the disease is confined to a small portion of the body, a cure is almost certain. The agents which effect this in a thorough manner are electricity, caustics, freezing, and removal with the knife. The last method is most in favor with the best surgeons; caustics are the remedies employed almost entire-

ly by quacks. In the hands of skilled operators, electricity and freezing have each proved successful methods. Caustics are also often successful; there are two or three which are especially effective. The great aim is, of course, to destroy all of the diseased tissue. There are special cases which can be best treated with each of the remedies mentioned. In general, the remedy which will the most effectually remove the morbid tissues is the best remedy.

It should be mentioned that although cancer is at first a local disease, and although this local disease may be cured, yet there still remain in the system the predisposing causes, which at first produced the disease. From these causes a new cancer may be developed, either in the same, or in a remote, portion of the body.

Can anything be done for cancer when it has become incurable? Yes; much may be done. The pain may be relieved, the general health and strength maintained, and, in many cases, the disease may be stayed, perhaps for many years, by the use of appropriate measures. The experience of learned English physicians has established the fact that a vegetarian diet is one of the most potent agencies in staying the ravages of cancer. The other health-giving agents which the hygienic system affords are also of the greatest utility in the same direction. Electricity is a most efficient remedy for the pain occasioned by the disease.

We cannot leave the subject without one or two cautions to our readers,

1. Do not be frightened into the belief that you have cancer when you have not. Do not inspect and irritate, by pinching and pricking, every little mole or discoloration of the skin that may be found upon the face. Do not imagine every little twitching, tingling, smarting, burning, or "crawling" sensation of the skin to be cancer. These methods, persisted in, would be almost sufficient of themselves to produce the disease. Still, if there is plain evidence of the disease, give the matter attention at once.

2. Have nothing to do with quacks or patent nostrums. "Cancer doctors" are a curse to humanity. They get their reputation by imposing upon the credulity of ignorant people. Not one tumor in twenty is a cancer; and yet these rascals seldom fail to pronounce every tumor which comes under their observation a cancer. It is very easy to cure a simple tumor, and so they soon acquire a wide reputation. The diagnosis of the disease is not always an easy matter, a microscopic examination sometimes being necessary.

Hygienic Remedies.

BATHING.

THE utility of water for purposes of bathing is due to its two most prominent properties. 1. It is a fluid, and is one of the best solvents known. 2. It will absorb more heat than any other substance, when equal weights are compared. In other words, the value of water when used in the form of the bath, is due to its cleansing and cooling properties.

In order to secure the best results, it is essential that pure, soft water should be employed. Rain water is generally the best, though this is unfit when allowed to become tainted by standing long. It should then be filtered. Hard water is injurious to the skin, and is almost useless as a cleansing agent on account of the oily secretions of the skin. Hard water may be rendered less harmful by prolonged boiling.

There is no advantage to be gained by the use of mineral waters, since they are only very strong solutions of sundry salts, alkalies, and other mineral poisons. The purer and softer the water, the better.

Sponge Bath.—The sponge or hand bath is perhaps the simplest and most useful mode of applying water to the surface of the body. It can be employed by any one, requires no elaborate preparation, and can be administered under almost any circumstances. A great quantity of water is not required. A few quarts are a plenty, and a pint will answer admirably in an emergency. A soft sponge, or a linen or cotton cloth, and a soft towel or a cotton sheet are the other requisites. The hand may be used instead of a sponge or cloth in applying the water.

The temperature of the room should be about 80°; that of the water should be not more than 95°, and 90° is generally better.

Some people can bathe habitually in water of a cooler temperature without injury, but the plan is not a good one for most persons, and is sometimes productive of great injury.

When everything is in readiness, remove the clothing, and begin the bath by wetting the head in tepid water, being careful to saturate the hair well. Wash the face, then the neck, and then the chest, shoulders, arms, and trunk. Rub vigorously, so as to prevent chilling, for even when the room is at 85°, the rapid evaporation of water from the surface of the body will produce chilliness unless a vigorous circulation is maintained.

After thoroughly bathing the upper portion of the body, turn the attention to the lower portions, continuing the rubbing of the upper portions at intervals to prevent chilliness.

As soon as the washing is concluded, envelop the body in a sheet and rub dry, or dry the skin with a towel. When the surface is nearly or quite dried, rub the whole body vigorously with the bare hand.

The bath should not usually be prolonged more than ten, or at most fifteen, minutes. Five minutes is sufficient time to secure a good bath, and even three minutes will suffice.

Persons who chill easily will find it better to bathe only a portion of the body before drying it. Some will even find it necessary to retain a portion of the clothing upon the lower portion of the body while bathing and drying the upper part.

Fever patients and weakly persons should be bathed with as little disturbance as possible. With some care on the part of the attendant, a patient may receive a sponge bath in bed with very little disturbance indeed. In such cases, great care should be taken to avoid chilling the patient by exposing too great a portion of the body at once.

The sponge bath is always useful in cases of fever, being one of the best known means for reducing the temperature. For purposes of personal cleanliness, it is absolutely indispensable. Persons in health should bathe at least once a week, even during the colder months. In the warm season a bath each day, or at least two or three times a week, is required to keep the skin free from impurities. When a bath is taken so infrequently as once a week, a little fine soap should be used to aid in removing foul matters from the skin.

Bathing does not, as many people suppose, render a person more liable to colds than he would otherwise be, though a little extra clothing may sometimes be required immediately after bathing, especially if the bath has been taken at too high a temperature. Failure to wipe every portion of the body perfectly dry is one of the most common causes of taking cold after bathing. Frequent bathing is the best known preventive against taking cold.

Infinitesimal Hydropathy. — The most scientific physicians are all coming to regard water as one of the most efficient remedies for disease; none but bigoted and ignorant physicians denounce its use. According to an exchange, it has recently been found that the injection of a few drops of pure water beneath the surface of a painful part is a very serviceable method of relieving pain. The pain of rheumatism is said to be quickly relieved in this way. We have not yet had an opportunity to try this remedy, but it has this to recommend it, at least, that it will do no harm, even if no good is accomplished, which cannot be said of those dreadful poisons of which opium is the chief, and which have so long been used in this manner.

Salt.—"The Damaras, in South-western Africa, never take salt by any chance; and even Europeans, traveling in their country, never feel the need of it. Their neighbors, the Nemaquas, set no store by salt; the Hottentots, of Walfisch Bay, 'hardly ever take the trouble to collect it,' and even their wild game do not frequent the salt rocks to lick them as they do in America. In the cold of Siberia, also, as in the heats of Africa, a similar disregard of salt sometimes prevails. Most of the Russians at Berezov eat their food without a particle of salt, although that condiment can easily be obtained at a trifling cost. Their soups, vegetables, and even roast meats, are prepared and eaten without salt." —*National Food and Fuel Reformer.*

PEOPLE'S DEPARTMENT

Devoted to Brief Discussions of Health Topics, Individual Experiences, and Answers to Correspondents.

Fighting Alcohol and the Doctors.

THE paragraph which we quote below from the *Commonwealth* is well worthy of the attention of those physicians who place such implicit confidence in the "strengthening" properties of alcohol. Drs. Clark, Van Buren, and Keyes, are all careful physicians, and stand at the head of the profession; yet they are evidently somewhat trammeled by the ancient dogmas of the "regular" school, which, happily, are daily losing their hold upon the minds of progressive practitioners of the healing art. We congratulate the great lawyer upon his wisdom in refusing to be poisoned.

"The recovery of Charles O'Conner, Esq., the very celebrated New York lawyer, is a case worthy of being kept before the public in support of temperance teachings. The doctors decided that he suffered from atrophy of the stomach. He could not, during several days, retain any food upon his stomach. Dr. Keyes, Dr. Van Buren, and Dr. Alonzo Clark were in attendance upon him. They gave up all hopes of his recovery, and said at one time that Mr. O'Connor had only a few hours to live—dying for want of nourishment. Yet Mr. O'Connor lived on, and for three days used only the pulps of two pears to support life. He refused to take any stimulants from the doctors, although they considered that his only hope for nourishment.

"Mr. O'Connor pursued his own course, and is now restored to health. He says himself when spoken to about it, 'I have not fought the doctors, exactly. They and I agreed what food I should take.' In fact, the doctors had, reluctantly, to agree to the great lawyer's own way of effecting a cure. If Mr. O'Connor had taken stimulants, he would have died; and it would only have been said, 'The doctors did all they could for him.' He refused their stimulants, took the pulps of pears only, and is now fully recovered.

"We desire that the lessons taught by this case should not be lost to our temperance cause. We are often charged with being ultra and extreme in our views, when we advocate refusing to take alcoholic liquors when ordered by the doctors. Here is a case which fully justifies the most extreme views upon the subject."

Correct Representation.—"What do your people at the Institute have to eat? Is n't their fare so very plain and meager that their patients nearly starve?" These questions were asked me by an honest, intelligent physician only a few weeks ago. Having had the privilege of spending a few weeks at the Institute, I was prepared to speak from experience, and assured him that the food used *there*, like that recommended to *all*, was as nourishing as it was palatable. In proof of this, I enumerated the different kinds of fruit, the long list of wholesome vegetables, the many grains, and the great variety of ways in which these could be prepared. My friend remarked that such a diet was liberal enough for anybody, but that he had been led to believe that the food used at the Institute, and by reformers generally, was very poor in quality and proportionately small in quantity.

This is an idea that obtains in the minds of many persons who are not familiar with the teachings of health reform. With some this is doubtless due to prejudice; but with many it is the result of wrong impressions conveyed by persons whom they supposed to be thoroughly posted.

Is it not often the case that wrong impressions are conveyed by zealous persons who are really desirous of advancing the cause? Is there not much danger of driving people *away* from the reform, simply by presenting it to them at an unsuitable time, and in an improper manner? It seems that there is a sort of logical order of presenting these truths, and that nothing ought at *first* to be made specially prominent except the fact that their adoption will insure a better state of health.

No truth need be sacrificed or made less plain; but there are certain points that ought to be made the *test* for a thorough reformer, and not for a beginner. These things should be presented in an attractive manner. People will not go out of their way to investigate that which promises nothing. Happily, the reform promises much, and people need only have the facts fairly stated to accept them, and having accepted them they will find an increase of health and happiness well worth a little self-denial.

NOVICE.

Questions and Answers.

Dyspepsia.—J. B. L. G., Ind., has suffered many years from dyspepsia. Everything he eats sours on his stomach. He asks, "What shall I do?"

Ans. Discard condiments, sugar, milk, and animal fats. Eat only fruits and grains, and those in moderate quantities, twice a day. Do not worry about your food. Think of everything else but your stomach. Take moderate out-of-door exercise as freely as possible. Eat dry food instead of soups or gruels. Toast and unfermented graham crackers are excellent articles of diet for you. A few weeks' stay at a good health institute would benefit you greatly.

Liniments.—A. F., Mich., wishes to know if liniments are "of any account on horses."

Ans. Liniments often appear to benefit; but in most cases the benefit comes wholly from the friction of the rubbing in applying the liniment. In a few cases the liniment, if an irritating one, may act somewhat upon the same principle as a fomentation, though the latter would be preferable. We do not know enough of the particulars of the case you mention to be able to advise you.

Urinary Difficulty.—J. M. S., Ont., complains of urinary stricture, and the passage of mucus or albumen in the urine. He wishes advice.

Ans. You need the personal attention of a careful and intelligent physician. We can only advise you to live strictly hygienic, and secure such surgical treatment as you may require.

Eczema.—P. W. S. has a boy of fourteen who is troubled with blotches on his face, lips, and ears, which first appear as little blisters or vesicles beneath the skin. After a short time a scab forms, which falls off and is followed by others; wishes to know what it is.

Ans. The disease is doubtless eczema. It may be due to some affection of the nerves, to exposure to cold, or to a disordered condition of the blood.

Palpitation—Chills—Puberty.—J. E. G., Wis., asks, 1. Will coffee or rye coffee produce palpitation of the heart? 2. What can be the cause of chills returning about once a month. 3. My daughter, aged thirteen, is troubled with pains across her. Her sleep does not rest her, going up stairs fatigues her, and she has been obliged to give up school. Nearly everything she eats distresses her, though her appetite is good.

Ans. 1. All hot drinks will produce palpitation by causing indigestion. Coffee is especially productive of palpitation. 2. Malaria may be the cause. 3. The cause of the ill health of your daughter may be the changes incident to puberty, or they may arise from improper habits. You would do well to examine the matter carefully. Give her abundance of out-of-door exercise of such kind as she can take without too much fatigue. Apply hot fomentations, followed by the tepid compress, to the abdomen when there is pain in that locality. A general bath twice a week, followed by a vigorous dry-hand rubbing, will be beneficial.

Cataract.—H. S., Pa., inquires: Can any change of diet arrest the development of cataract in the eye?

Ans. Probably not. The only remedy is removal of the crystalline lens, which becomes opaque in this disease.

Incontinence of Urine.—Mrs. S. writes: I have a little boy nearly four years old who wets his bed very badly; can anything be done to cure or even help him? A drug doctor gave him tincture of cantharides, but it hurt his back, and I will not give it any more. He is a strong, healthy child. His diet is fruit, grains, and vegetables, with a little milk; has two meals a day, with an apple extra at four o'clock P. M. I do not think he is troubled with worms, as we have given him worm medicines with no result. His urine smells very badly. I want some advice for home treatment if you please.

Ans. Omit the apple in the afternoon, giving, in its place, a cracker or a piece of dry bread, if necessary. Do not allow him to drink water for some time before going to bed. Be sure that the bladder is empty before he retires. Wake him several times during the night, for a week or two, and allow him to empty his bladder. Do not cover him too warmly. It may be that the difficulty is more a habit than a disease. In the latter case, it must be treated as any other bad habit.

Bathing—Worms.—S. A. S., Wis., inquires: 1. Would it be a good plan for a laboring woman to rise early in the morning to bathe? and what soap is best for use? 2. How often should children bathe in very cold weather? 3. What is best to do for pin worms? 4. Which is better to wear next the skin, woolen, or cotton?

Ans. 1. The morning is not the best time to bathe, but a morning bath is better than none at all, or one taken when the body is too much fatigued. It should be taken in a warm room, however, and should be followed by vigorous hand rubbing. Two or three times a

week is as frequently as the bath should be taken. Use fine castile soap. 2. Once or twice a week is sufficiently often to bathe children in the winter season. 3. Use graham bread and plenty of fruit. Keep the bowels regular. Employ a daily enema after evacuation of the bowels, of pure cold water, salt and water, or lime water. 4. Fine woolen or cotton flannel underclothing is the most healthful.

Sensitive Skin.—J. G. complains of a sensitive condition of the skin which causes it to raise in red spots wherever touched by any hard substance. There is no pain or inconvenience attending the difficulty; wishes to know if the skin is healthy.

Ans. It is evidently not perfectly healthy, though not the seat of any marked disease. It requires no other treatment than the tonic influence of cool baths.

Cold Food.—T. D. R., San Francisco, says: It is said by Dr. Hall that eating cold food brings on many fearful diseases. Is this true?

Ans. Probably man does not, alone, of all the members of the animal kingdom, really require warm food, except as he may have created a necessity for its use by habit. Good health can be maintained upon cold bread and fruit for an indefinite period. By cold food we should not be understood to mean food at freezing temperature. We simply mean that which has not been warmed by fire. Very cold food is injurious.

J. A. K., N. H.: Your doctor was doubtless right with regard to the nature of the tumor. It should be removed by the knife.

Mrs. E., Vt.: You have dyspepsia and torpid liver, with bronchitis. You should go to a health institute.

I. B. A., Ind.: Graham flour is unbolted wheat flour, or wheat meal.

B. B., Va.: Local treatment of the eyes is necessary, as well as the general treatment which you are taking, and which is good so far as it goes. Bathing the eyes with tepid water several times a day may benefit them. We cannot prescribe more definitely without an examination of your eyes.

S. A. M.: "Canker sore mouth" is caused by some derangement of the stomach, and is due to the fact that the mucous membrane of the mouth and that of the stomach are both supplied by branches of the same nerve.

T. W. W., Mich.: We know of no way in which you can prevent the growth of hair except by destroying the root of each hair, which would be a very painful operation.

C. R.: The looseness of the bowels may be due to the character of the water used. The abdominal bandage, or wet girdle, may be found useful. It should be worn every other day and each night, being frequently changed during the day. Use filtered rain water.

G. H. H.: 1. We do not publish the REFORMER in German. 2. Milk allowed to stand in a room occupied by persons would accumulate impurities from the air by absorption.

A. A. C.: As commonly cooked, buckwheat is not a wholesome article of food. Burnt grease added to any otherwise wholesome food will make it difficult of digestion and productive of disease.

H. C., Mich.: Your mother's difficulty doubtless arises from dyspepsia. You should direct your attention to the improvement of digestion by proper diet and suitable treatment.

F. N. B.: You should adopt a vegetarian diet, chiefly of fruits and grains, and should eat two meals a day at such hours as are most convenient; 6 A. M. and 12 M. are good hours, though 8 A. M. and 2½ P. M. would be preferable.

L. C. A., Ill.: Electricity is a most excellent agent in the treatment of disease, but it should be employed only by those skilled in its use.

N. W., Boston: The girl should go to a good health institution unless she can be placed under the care of a skillful hygienic physician elsewhere. Electricity would probably benefit her as much as anything.

L. P. K., N. Y.: If you mean by "*good* fruit wine" that which is unfermented (none other would be good), we must answer, Yes. A person would live no longer on alcohol than on salt.

C. T.: See Farm and Household Department in this number for a recipe for mucilage. We can give you no encouragement concerning your mother's case.

Mrs. G. A., Tenn.: The articles you mention would aggravate the indigestion. Molasses is especially objectionable.

T. S. B. R., Ind.: We should have to see your palate before being able to advise you. Your brother may have disease of the kidneys.

R. O. B., Ind.: The chemicals of which the soap is made would destroy the products of disease which might be retained in the fat. There are several processes for making hard soap. See Farm and Household for one method.

FARM AND HOUSEHOLD.

Devoted to Brief Hints for the Management of the Farm and Household.

The Hot-Bed.

In order to secure early vegetables or flowers a hot-bed is indispensable. Comparatively few, however, make any attempt to provide anything of the kind. Many who have no hot-beds would be glad to have one if they knew how to construct and manage it, and for the benefit of such we will give a few directions.

The first thing to be attended to is to procure the manure. Fresh stable manure in which there is plenty of litter is best. If the manure does not already contain a sufficient amount of litter and straw, more should be added, until at least one-third of the heap is litter. Enough of the manure and straw should be procured to make a pile about three feet high, and one foot wider and longer than the required bed. This must be thoroughly forked over and mixed, adding water if the manure is very dry, and then left in a compact heap for a week or ten days until it begins to ferment well. Then mix thoroughly again, and prepare the bed. Choose a sunny locality when practicable, and if it faces the south-east, it will be better. A high board fence, a building, or an evergreen screen on the north, will be valuable as a protection. If the box, or frame, has been already made, mark off a space six or eight inches larger, and drive a stake into the ground at each corner, so as to be about three feet high. Then commence with the manure, and build the manure bed by placing layer after layer, precisely as a farmer builds a hay-stack, except that the hot-bed should be lighter and lower in the middle, instead of compact and rounded as in the hay-stack. If the manure is placed too light and loose, the heat will be short and violent; if too solid, the heat will not rise. The common practice is to place with the fork even and successive layers, beating the center down compactly with the fork and treading the outer layer. With some manure, treading would make it too solid. The hight will also vary some from the same cause; that is, a higher bed must be made of manure which does not ferment freely. The bed should be about six inches higher at the back than in front.

The frame can be constructed by any handy man at a very small expense. It consists of a wooden frame, generally six feet wide, fifteen inches high at the back, and twelve inches in front, and from six to sixteen feet long, according to the supply of early vegetables required. The frame should be subdivided by cross-bars, and each division covered by a glazed sash; the sides and ends should be joined by hooks and staples, to admit of its being taken apart and stored away when not required. The bed being prepared, place the frame in position and close the sashes. The manure will begin to heat immediately, and in about three days it should be covered with six or eight inches of rich and finely pulverized garden soil. The sashes should then be kept slightly raised, so that the steam and vapor may pass off, and in about a week, or as soon as the heat in the soil declines to 100°, the seed may be planted. When the manure is too dry, the bed will sometimes stop heating too soon. In such cases make a few holes with a crow-bar in the top of a bed, and pour in water. This will very soon revive the heat, and give the plants a fresh start.—*Practical Farmer.*

Cruelty to Animals.

It is thought by many that sheep can get along very well without water; and they are often left in pastures for weeks without it. This barbarity is often perpetrated by men who ought to reason correctly; and then when diseases break out, and the poor sheep die off in large numbers, the stupid proprietor does not think of attributing the loss to his own neglect.

Take a flock of sheep that have been thus treated, put them in a place where water is to be had, and, at first, they will seem to care but little for drink; but in a few days they will learn to come to the trough, and will drink as heartily and as regularly as larger cattle.

Sheep that have proper food and drink, at proper intervals, as nature requires, will be healthy and thrifty unless disease is previously taken into the system by hereditary taint, or by infection; and plenty of good cold water will do much toward restoring diseased flocks of sheep.

This is self-evident, that it is contrary to nature to keep stock without water; and the owner must see that such barbarity will, in the end, bring its own penalty.

Fowls, too, are often left to suffer, in dry

weather and in winter, for lack of drink; and this is often the cause of a failure in the winter supply of eggs. In cold weather, place a dish of warm water near where your fowls most frequently gather, and you will see how readily they will find the water kettle, and how they will flock around it, and drink; and soon you will find your supply of eggs is largely increased, unless you starve them.

Use warm water, in the coldest weather, to keep it in a liquid state until all have satiated their thirst. Could all the animals speak out their wrongs, they would have a sorrowful tale to relate, all of them; and many a proud man would blush for shame. The man with whip and spur, who proudly bids his thousands on the speed or strength of the horse he is so proud of, does not, I suppose, stop to consider that there is a time coming when he must account for the hard and cruel treatment his beast undergoes to earn the money he wins in the race. JOS. CLARK.

Useful Recipes.—To clean Britannia metal, use finely powdered whiting, 2 tablespoonfuls of sweet oil and a little yellow soap. Mix with spirits of wine to a cream. Rub on with a sponge, wipe off with a soft cloth, and polish with a chamois skin.

The best way to clean the inside of old iron pots and pans is to fill them with water in which a few ounces of washing soda is dissolved, and set them on the fire. Let the water boil until the inside of the pot looks clean.

To remove freshly spilt ink from carpets, first take up as much as possible of the ink with a teaspoon. Then pour cold sweet milk upon the spot and take up as before, pouring on milk until at last it becomes only slightly tinged with black. Then wash with cold water, and absorb with a cloth without too much rubbing.

Scorches made by overheated flat irons can be removed from linen, by spreading over the cloth a paste made of the juice pressed from two onions, ½ oz. white soap, 2 ozs. fuller's earth, and ½ pint vinegar. Mix, boil well, and cool before using.

Cracked Dishes.—As soon as a plate gets cracked part way across, crack it the rest of the way; do n't wash it after breaking, but cement it at once. I have found nothing better for this purpose than white-lead mixed in oil. The prepared may be purchased in pound cans and kept always ready for use (after the can has been opened keep a little linseed oil on the surface to prevent the lead's hardening). Paint both edges of the parts with the lead mixed to a consistency little thicker than it usually is when spread with a brush; bind the article closely, and allow it to stand until perfectly dry before putting into use again. Nothing is gained by setting the repaired article where it is hot; for the power of the cement is greatly lessened by this operation. When purchasing the paint, be sure and get a pure article of lead; for Spanish whiting will not answer the purpose. Lead freshly mixed is not good; the material becomes more adhesive by standing awhile, both as a cement and as a paint.

Pie or baking plates that have been used for even a few times after being cracked cannot be as successfully mended as those freshly broken; for cementing materials will not adhere to greasy surfaces with much tenacity.—*Ex.*

Hard Soap.—Dissolve 2 lbs. of sal-soda in 1 gal. of soft water. Add 2 lbs. of freshly slaked lime, stirring occasionally for half a day. Then let it settle and pour off the clear fluid. Add 2 lbs. of tallow, and boil until it is dissolved, in a brass or copper kettle. Cool in a flat vessel, and cut into cakes of convenient size.

Mucilage.—Place in a mucilage bottle half an ounce of gum arabic. Fill the bottle with water, and allow it to soak over night. In the morning, place the bottle in a basin of water upon the stove, in a position where it will be subjected to moderate heat. With frequent stirrings it will soon be ready for use. More water should be added occasionally, as it thickens by standing.

If a quarter of an ounce of sulphate of aluminum is added to the solution it will unite wood and metals as well as paper. When applied to paper, gum-arabic solution sometimes renders it partially transparent. To prevent this, a little spanish white may be added. A few cloves, or two or three drops of carbolic acid added to the solution, prevents souring.

Fastening on Knife-Handles.—Set the handle upon end, fill the cavity with pulverized rosin, then warm the small part of the knife or fork and insert it slowly, crowd it down firmly, and hold it in right position until the rosin cools enough to set. As rosin is not soluble in water, hot or cold, the knives are not loosened. —*Sel.*

To Detect Bogus Sirup.—Put a teaspoonful of the sirup into a clear solution of tea. If the sirup is adulterated, the solution will become black. This test is not quite infallible, but is usually reliable.

POPULAR SCIENCE.

In this Department Will Be Noted the Progress of Science, New Discoveries and Inventions.

Weighing Light.

THE London *Times* gives the following description of Mr. William Crookes' new apparatus for weighing a ray of light:—

"In a tube in which a vacuum has been produced, a very fine thread of glass is suspended by both ends, and at one part of it is a small cross thread, to which is attached a disk of pith with one side blackened. At the junction of this cross piece is a small circular mirror, so arranged that a ray thrown on it from a lime light shall be reflected on to a graduated scale, and any twisting of the glass thread shall be thus recorded. At one end of the glass thread is a turning disk and a Harding's counter, outside the tube. The light to be weighed is allowed to fall on the pith. This, as in the simple radiometers, is repelled, and its motion causes a torsion of the glass thread and a motion of the mirror spot along the scale. The turning disk is employed to unwind the thread against this action, the mirror spot going back to zero on the scale. The counter tells the degree of torsion the glass thread has undergone by counting the amount of unwinding required. Then a little iron weight, the one-hundredth of a grain, which is within the tube, is lifted by a magnet on to the cross-bar; its weight causes a torsion, the mirror spot travels along the scale, and the unwinding is performed as before. A candle placed six inches away from the pith was found to give 1,628 degrees of revolution, and the little iron weight 10,021 degrees. The candle light is therefore calculated to weigh 0.00172 grains. Mr. Crookes has made experiments on the sun's light, and has worked out some calculations on it. It is equal to 32 grains on the square foot, 57 tuns on the square mile, or 3,000,000,000 tuns on the whole earth.

"There are two practical applications of this discovery which bid fair to be of considerable scientific value. The first is its employment as a photometer. If, for instance, the candle light above noted weighs 0.00172 grains, that weight could be made to cause a certain deflection of a dial finger. With this might be compared the deflection caused by any other light, and thus the intensity of one illuminator conveniently measured by the other, used as a standard. Mr. Crookes tried this, and found that a correspondence between the light of a candle flame and that of a gas burner took place when the candle was 48 inches and the burner 113 inches distant. Consequently the light of the burner equaled in intensity that of 5½ candles. This gives a way of testing any burner, the deflection due to the light of which, when good gas is employed, is previously known. If the deflection should fall short, then gas of poor quality would be presumed. So also the varying intensities of sunlight might be measured, and this would prove a valuable addition to meteorological records."

Photography as a Detective.—Recent attempts at forgery, by the alteration of the dates and amounts of written checks and drafts, have resulted in investigation as to how erased writing may be rendered visible. Various chemical processes, more or less efficacious, have been suggested, but the simplest process yet devised seems to be the photographing of the suspected paper.

This is founded on the fact that certain colorless or feebly colored substances, while very slightly affecting the eye, act powerfully upon the sensitive film in the camera. Photographers are aware that a photographic proof nearly effaced through age may, by photography, be reproduced with all its primitive detail and intensity. Generally, all yellowish stains may thus be brought out; and peroxide of iron in the smallest proportion, so as to be practically imperceptible to the eye, gives proofs of great clearness.

Common ink, says M. Gobert, to whom is due the credit of the suggestion, is a compound of tannin and oxide of iron. Now it matters little what chemical means are used to remove the ink marks; for, however carefully the chemical be applied, some traces of peroxide of iron are sure to be left, either on the surface or in the substance of the paper. It is only necessary, therefore, to photograph the sheet, and to enlarge it besides, to bring out in the proof the effaced writing in an entirely legible condition.—*Sci. American.*

Artificial Leather.—A substitute for leather, of English manufacture, was displayed at the recent Maritime Exhibition in Paris, and received with much favor. It was composed of a layer of cork between two layers of text-

ile fabric, the whole being gummed with India-rubber, and welded together. The process by which it is manufactured is as follows: Thin sheets of cork are painted upon one side with two successive coats of a solution of India-rubber. Japan cloth-canvas is treated in the same manner, and, when dry, its gummed surface is applied to that of the cork-sheets. The clean side of the cork is now treated with two coats of the India-rubber; and a linen or cotton fabric, after subjection to the same process, is laid upon it, the coated surfaces coming together. The compound sheet is then submitted to heavy pressure between rollers, or under a stamper or press, until it is, in effect, a simple substance, having strength, durability, and flexibility. It is adapted to nearly every use to which leather has been applied, as to the manufacture of bags, harnesses, boots, etc. Moreover, being thoroughly water-proof, it may be employed as a material for buckets and other vessels for holding water.

Controlling the Weather.—Rev. L. B. Woolfolk, of Kentucky, believes that it is possible for man to control the weather to suit his fancy or convenience.

In a lecture in Cincinnati he explained his theory, in which he "proposed to keep up a cannonade upon one of the Aleutian Islands, so as to keep the storm track of the polar current constantly open in the Pacific Ocean. By this means the two currents would never become embanked, and the tropical current all round the earth would set up a steady flow toward the open track. This modification of the direction of the south winds would greatly benefit the northern hemisphere. The deserts of Asia and North America would have regular and seasonable rains; vegetation would continue throughout winter, and the warm winds blowing up the Atlantic into and across the Arctic Ocean, would drive before them the warm water of the southern seas to mitigate the cold of frigid regions."

The World of Insects.—The *American Entomologist* gives the following calculation of the amount of labor necessary to fully describe the insect world:—

"One volume of 625 pages would describe 500 species. To describe the 500,000 species will consequently require just 1000 volumes—occupying a shelf 160 feet long—or enough to fill seven book-cases six feet high and four feet wide. In describing the species, a great deal of observation and close inspection is necessary to determine all the habits, variations, and other chances to make blunders, so as not to have species and varieties mixed together. No person can get through the task safely on an average of more than one species a day; and counting 300 days to the year, it would consume the hard labor of one man 1666 years, if he should live so long. As much time, or more, would be required for the illustrations, making 3332 years; or it would take the time of eighty-three persons, each working forty years, to get through with the book."

A New Process of Making Bread.—M. Cecil, a French engineer, has invented a new process of preparing the materials for making bread, which has received the approval of the minister of war, and will hereafter be adopted in the French army. By this process an increased percentage of the nutritive properties of grain is retained, so that by avoiding the usual grinding and wetting, the grain that would make one hundred and fifteen pounds of bread in the ordinary way will make what is equivalent to one hundred and forty pounds. The new process is described as follows: The unground grain is first steeped in water, after which it is placed in revolving cylinders, by which it is deprived of the outer husk, which contains but four or five per cent. of nutriment. The grains are then softened by forming them into a thin sponge, and kept for a space of six to eight hours at a temperature of seventy-seven degrees Fahrenheit. They are then crushed under and made into dough as usual.—*Ex.*

Iron.—The Iron Mountains of Missouri, according to Prof. Waterhouse, contain enough ore, above the surface, to afford, for two hundred years, an annual supply of 1,000,000 tons. Shepherd Mountain is 600 feet high, and its ore contains a large percentage of iron. Pilot Knob rises 1,114 feet above the Mississippi; its base, 581 feet from the summit, is 300 acres, and the upper section of 141 feet is judged to contain 14,000,000 tons of ore. Iron Mountain has an elevation of 228 feet, and an area of 500 acres at its base. The solid contents of the cone are 230,000,000 tons. At the depth of 150 feet, the artesian auger was still penetrating solid ore. The iron from all these mountains is strong, tough, and fibrous.

Bread from Wood.—A German chemist succeeded in making quite passable bread by drying and finely pulverizing wood shavings, and then making the product into bread in the ordinary way.

NEWS AND MISCELLANY.

In this Department Will Be Summarized the Most Important of the Events of the Day.

—The Egyptians have repulsed the Abyssinians at Goodrah.

—Don Carlos has arrived in England from France.

—The report of the recent disastrous defeat of the Turks by the insurgents is confirmed.

—Robert Dale Owen has recovered his reason. He sails for Europe about June 1.

—It is reported that Greece has sent overtures proposing to make common cause with the Turkish insurgents.

—Daniel Drew, the famous New York capitalist, has failed for $1,500,000. He has lost his money as he made it, by speculation.

—The signers of the Declaration of Independence are to be represented in wax, life size, at the Centennial.

—Manchester, England, had a very destructive conflagration on the night of the 16th. It consumed a whole block of shipping warehouses, valued at two or three millions of dollars.

—The old elm on Boston Common, supposed to be 250 years old, was prostrated by a recent storm. It was soon carried off in bits by relic-seekers.

—There are now 120 Chinese students in this country, under the charge of three Chinese Commissioners, two of whom were themselves educated in American colleges.

—There are many public schools in New York where the air space per pupil is less than sixty feet, and the atmosphere is loaded with the impurities accumulated during the hours of study.

—The number of deaths in New York, in 1875, from all causes, was 30,709—an increase of 1,982 over the number reported for 1874.—*Inter Ocean.*

—Russia is making arrangements to construct a railroad which shall complete a line across the Eastern continent. Such an enterprise is of the greatest interest to the whole civilized world.

—The hordes of gold hunters who hastened to the Black Hills upon the reported discovery of gold in that vicinity, are now returning with empty pockets and tattered garments, but considerable increase of wisdom.

—The Ward will case which has been occupying the courts at Detroit for so long a time, has been decided, at last, in favor of the contestants. The will and first codocil were pronounced valid, the second codocil invalid.

—The jury's verdict in the Tweed suit has at last been reached. After only two hours' deliberation, the jury brought in a verdict against Tweed for $6,537,117,38.

—The search for the remains of Sir John Franklin will be renewed by an expedition which is to leave England in May under the command of Capt. Allen Young.

—The California Coast Survey has erected a signal upon the summit of Mount Shasta, the reflector of which can be seen at a distance of one hundred miles, when illuminated by bright sunlight.

—A dispatch from St. Petersburg says that war began between Corea and Japan on the 8th of March. Japan declared war, and has blockaded all the Corean ports.

—The amount of money paid to the Khedive of Egypt by the Rothschilds for his Suez Canal shares was exactly $19,882,910, and their commission for attending to the business was $407,-070.

—Last month witnessed such a record of storms as rarely occurs. From nearly all parts of the country the telegraph lines flashed the news of great disturbance of the elements, which in many cases occasioned the destruction of much property and the loss of some lives.

—The storm of March 16, seems not only to have been disastrous in a large part of our own country, but on the Atlantic and in England. Railway trains were stopped on various lines, particularly on the Central Pacific, and several vessels with many lives were lost on the Atlantic.

—The Carlist war in Spain is ended at last, at least for the present. The army of Don Carlos has been defeated and disbanded, and he, with a few followers, has taken refuge in France. It is said that he carried with him very great treasures, and that he is not at all discouraged.

—Scientific men have been puzzling themselves to account for a reported shower of meat which recently fell in Kentucky. The pieces are said to have varied from particles as fine as mince meat to good sized steaks. Dr. Smith pronounced them to be portions of dead frog's spawn.

—And still, almost daily, corruptions in the government are being exposed. The investigations of the month have resulted in astounding developments concerning a great "whiskey ring" involving many of our leading men, and farther facts about the Emma Mine scandal, causing the recall of Schenck, and his resignation.

—The Advisory Council in the Beecher case reported in his favor after several days of continuous deliberation. Dr. Storrs is greatly dissatisfied with this result, and has reviewed the action of the council in a public discourse. It is expected that his dissatisfaction may result in his withdrawal from the denomination.

—A new sect has appeared in Denmark which has a novel creed. The founder of the new doctrine, Grundtvig, repudiated the authority of the Bible, yet professed to believe in the divinity of Christ. His followers are somewhat similar to the Quakers in their mode of life, though they are much more active in political matters.

—A family in Newark have acquired such a relish for dog meat that they make it a regular diet. Their neighbors have appealed to the authorities to interfere in the case, but they refuse to do so. Jersey people seem to have queer tastes; for in some portions of the State musk-rats are considered quite a delicacy.

—The Committee on Patents has refused to grant to Mr. Wilson an extension of his patent on sewing machines, so that the price of these useful articles will be greatly reduced very soon, no doubt. The testimony given before the committee showed that the actual cost of a good machine is not over $15.00. This great monopoly must soon be broken.

—The recent exposure of Belknap, who occupied one of the most responsible positions in the government, has brought to light a sickening spectacle of the most systematic plundering, much of which has been the result of family ambition to vie with social rivals in luxurious extravagance. There are good reasons for believing that the exposure of Belknap is only an introduction to similar exposures which might, and perhaps will be, made.

—A subcontractor who was employed to place head-stones above the coffins of deceased soldiers, finding it necessary, in executing his contract, to open many of the coffins, has made the singular discovery that the previous contractors who interred the coffins, filled them, in hundreds of cases, with the legs of horses and mules. The object of this deception, was, of course, to increase the number of burials, as they were paid a specified sum for each.

SEASONING.

An Ulster overcoat covers a multitude of sins.

How to raise beets—take hold of the tops, and pull.

In France they have a saying that "tobacco is the tomb of love;" and, if it is not true, it ought to be.

Mr. Marrowfat threw out a fine thought at the table last evening. He remarked that a man with much honesty about him in these times must feel a good deal like tying it up in a rag for safety.—*Brooklyn Argus.*

When a man detects a missing button after getting on a clean shirt, no one in the house is aware of the fact. He takes off the shirt and puts on another, quietly smiling all the while. He never, never speaks of it to a soul.—*Danbury News.*

A Chinaman in San Francisco was rudely pushed into the mud from a street crossing by an American. He picked himself up very calmly, shook off some of the mud, bowed very politely, and said, with a mild, reproving tone to the offender, "You Christian, me heathen; good by!"

"Mother," said a promising boy, as he came in whistling from school the other day, slung his satchel full of books down on the stair-landing, and elicited a howl of agony from his infant sister by giving her a sly punch in the ribs; "Mother, I hear 'em saying at school to-day that this Belknap business is all a 'stall;' is it?"

"A what, my son?" inquired the doting mother.

"A 'snide,' you know—a first-class 'bilk' on the community."

"I don't understand you, Willie dear; what horrid words those are; explain yourself."

"Ah, mother, pull down your vest. I mean isn't it a fraud, a put-up job you know, to get Bel' to give himself away, and then have Cale Marsh light out for Canada, so's he can't swear it on 'im. Don't you twig? Where's th' old man?"

Whack! bang! came an application of slipper suddenly from the rear—the "old man" having just entered unobserved in season to wind up the dialogue.

Literary Notices.

American Journal of Education. St. Louis. This excellent journal well deserves the patronage of all who are interested in the cause of education. It discusses with candor and ability the various interesting topics connected with educational matters, and is straightforward and outspoken.

Sanitarian. This most useful monthly has now reached its fourth volume. It continues, as it started, an able advocate of sanitary reform. It has also recently become the organ of the Medico-legal Society which adds greatly to its interest and value.

Temperance Leaflets. The National Temperance Society, 58 Reade St., N. Y., have just issued a new packet of "Leaflets," which are neat and attractive in external appearance, and contain a considerable amount of both entertaining and useful information which will be particularly interesting to little people.

Temperance and Education is the title of a little pamphlet just issued by the same house which considers the "Relation of the Social Drinking Customs to the Educational Interests of the Nation."

Items for the Month.

☞ A BLUE cross by this paragraph signifies that the subscription has expired, and that this number is the last that will be sent till the subscription is renewed. A renewal is earnestly solicited.

☞ The daily additions which are made to our lists of subscribers bear good testimony to the earnest and successful labors of our army of agents. If our list of subscribers continues to increase at the present rate, we shall soon secure a circulation far beyond our most sanguine expectations.

☞ Dr. G. S. Honeywell wishes us to say that upon receipt of $9.00 he will send to any address 100 lbs. of choice graham crackers, and a receipt for one years' subscription to the HEALTH REFORMER, having made proper arrangements with us to enable him to do so. His address is Wilmington, Del.

☞ We would call attention to Mr. Schumacher's card on the second page of the cover. We can testify most heartily to the thorough reliability of the products of Mr. Schumacher's mills. His oatmeal is, undoubtedly, the very best in the world. All who are fond of this excellent food, and those who wish to learn to relish it, should patronize him.

☞ We have still on hand a few hundred copies of the Family Health Almanac. It is not yet too late to do a good business in the disposal of these useful little volumes. We shall be very happy to supply those of our friends who may be able to dispose of more than they have already purchased. Do not abandon the business too soon. Keep at it so long as there is any demand for them. Thousands may yet be disposed of if each one will make a very little effort to do what he can.

We have also left, after supplying orders received previous to publication, a few packages of the "special edition" almanac, which contains the same matter as the first, but is printed upon heavy, tinted paper, and has a beautiful cover of enamel paper, printed in black and bronze. This is just the thing to send to fastidious friends, and to present to hotels, reading rooms, libraries, and other public institutions. Send for a few copies and supply some of the public resorts in your immediate vicinity. We are certain that you will not fail to see some good results from the trivial outlay necessary.

The retail price of the regular edition is ten cents. For $1.00, fifteen copies will be sent, postage paid. The special edition retails at fifteen cents. Ten copies will be sent, postage paid, for $1.00.

Dress Reform Patterns.

THE following is a brief description of the several garments for which we can furnish patterns. The advantage which these garments afford is that they secure the four desiderata which physiology tells us should be embodied in the clothing of the body, which are as follows :—

1. Unimpeded action of all the vital organs.
2. An equable temperature of the whole body.
3. Suspension of the clothing from the shoulders instead of from the hips.
4. Reduction of the weight of the clothing.

The following is a list of the garments with the prices of patterns :—

No. 1. A flannel undergarment to be worn next to the skin. It covers the whole body from neck to wrists and ankles. Price, 50 cts.

No. 2. A garment combining chemise and drawers, arranged with buttons so as to support the skirts and stockings from the shoulders. To be worn next to the preceding garment in cold weather. Price, 50 cts.

No. 3. This garment combines chemise and drawers, and also supplies the place of the corset so efficiently that those who have been accustomed to wearing the latter article are happy to dispense with it after a single trial of this dress. It is cut to fit the bust perfectly, thus affording all desirable support. Price, with cloth model, 50 cts.

No. 4. Gabrielle Dress. This may be made either long or short to suit the taste of the wearer. When worn with pants it should be from six to nine inches from the floor. Those who do not wish to adopt the pants may wear the dress two or three inches from the floor with dress drawers and leggins. Price, 50 cts.

We can also furnish patterns for skirts, pants for short dress, and dress drawers with leggins, at 25 cts each.

Those who wish to secure a good fit should send the following measurements :—

1. Bust measure, number of inches. 2. Under bust measure. 3. Waist measure. 4. Length of waist under arm. 5. Hips, three inches below the waist. 6. Width of back across shoulders. 7. Length of drawers from waist down. 8. Length of back from neck to waist. 9. Length of sleeve inside. 10. Length of sleeve outside. 11. Length of shoulder. 12. Around neck. 13. Around arm-size (high up).

When desired, garments will be made at as reasonable rates as possible and sent by express. The patterns will be sent, post-paid, on receipt of the prices marked. We employ an experienced dress maker to cut patterns and make garments, so that all may feel sure of obtaining a good fit if proper measures are sent. We hope that our friends will not fail to avail themselves of this opportunity for obtaining just what they need for their health, comfort, and convenience.